Great Britain

Samuel King

THE

# NAUTICAL ALMANAC

AND

# ASTRONOMICAL EPHEMERIS

FOR THE YEAR

# 1845.

PUBLISHED BY ORDER OF

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## ALPHABETICALLY ARRANGED.

*** The large Roman Numerals indicate the Page of each Month; ie small, the Page of the Preface; and the Arabic, the Page of the Book.*

# PREFACE.

The Contents of the Nautical Almanac and Astronomical Ephemeris for the year 1845 are the same generally as those of the preceding year, the only variation being an extension of the accurate Ephemeris of Vesta.

The Sun's Longitude from the *Mean* Equinox, the Latitude, and the Earth's Radius Vector have been deduced from the New Tables appended to *Effemeridi Astronomiche di Milano per l'Anno* 1833, (Milano, 1832), using a difference of Meridians $=36^m\ 45^s$.

The Perturbations of Longitude and Radius Vector produced by each of the Planets, Venus, Mars, Jupiter, and Saturn, have been computed accurately from the Tables for every 10th day of the year; the Sums then interpolated with second differences for every 5th day, and thence the daily perturbations by simple proportion. The other parts of the calculations have been performed independently for every Mean Noon.

The Latitude of the Sun, depending on the attraction of the Moon, was computed for every day, and that part depending upon the Planets, Venus and Jupiter, was obtained for each tenth day and interpolated.

The Nutations of the Obliquity of the Ecliptic ($\Delta\omega$) and of Longitude ($\Delta$ L), have been derived from MS. Tables, constructed by the late Mr. James Epps, according to the following formulæ:

$$\Delta\omega = \quad 9''\cdot2500 \cos \Omega - 0''\cdot0903 \cos 2\,\Omega + 0''\cdot0900 \cos 2\,☽ + 0''\cdot5447 \cos 2\,☉$$

$$\Delta L = -17''\cdot2985 \sin \Omega + 0''\cdot2082 \sin 2\,\Omega - 0''\cdot2074 \sin 2\,☽ - 1''\cdot2550 \sin 2\,☉$$

where $\Omega$ is the Mean Longitude of the Moon's ascending Node, ☽ the true Longitude of the Moon, and ☉ the true Longitude of the Sun, (*Ast. Soc. Cat.*, pages xiv and xv); but the terms depending on 2 ☽ have been omitted.

The Mean Obliquity of the Ecliptic has been taken $=23°\ 27'\ 34''\cdot23$, on January 1, 1845, and the Mean Annual diminution $=0''\cdot457$. (Bessel's *Tab. Reg.* page 9.)

The Sun's Right Ascension and Declination were computed independently for every Mean Noon.

The Semidiameter of the Sun, at the Earth's Mean Distance, has been taken $=16'\ 0''\cdot9$, as determined by Bessel from 1698 transits, in which both limbs had been observed at Königsberg, between the Years 1820 and 1828, with Reichenbach's meridian circle. (Bessel's *Tab. Reg.* page L.)

The Equatorial Horizontal Parallax of the Sun, at the Earth's Mean Distance, has been taken $= 8''\cdot5776$, as deduced by Professor Encke, from the Transits of Venus, in 1761 and 1769. (*Der Venusdurchgang von* 1769, &c. Gotha, 1824. page 108.)

The Constant of Aberration $= 20''\cdot36$. (Preface to *Ast. Soc. Cat.* page x.)

The Sidereal Time at Mean Noon $= \dfrac{\text{Sun's Mean Longitude} + \text{Nutation}}{15}$

According to Professor Bessel (*Tab. Reg.* page XXIV), the Mean Longitude of the Sun, at Paris Mean Noon of January $0^d$ of the year $1800+t$, is

$$279°\ 54'\ 1''\cdot36 + t.\ 27''\cdot605844 + t^2.\ 0''\cdot0001221805 - f.\ 14'\ 47''\cdot083$$

where $f$ denotes, *for the* 19*th century*, the number of years from the preceding bis-

sextile year. Assuming the Meridian of Greenwich to be $9^m\ 21^s{\cdot}5$ West of that of Paris, and altering the epoch to the Mean Noon of January 1 of the year $1800 + t$, the Sun's Mean Longitude (M) for the meridian of Greenwich is hence found equal to

$$280^\circ\ 53'\ 32''{\cdot}75 + t\,.\,27''{\cdot}605844 + t^2\,.\,0''{\cdot}0001221805 - f\,.\,14'\ 47''{\cdot}083,$$

and we have, for the Mean Noon of any day ($n$) of the year $1800 + t$,

$$\text{Sidereal Time} = \frac{\text{M}}{15} + n\,.\,3^m\ 56^s{\cdot}555348 + \text{Nutation in R. A.}$$

The Longitude of the Moon from the *Mean Equinox*, the Latitude, Horizontal Parallax and Semidiameter have been derived from BURCKHARDT's *Tables de la Lune* (Paris, 1812), using a difference of Meridians $= 9^m\ 21^s$: The arguments have been taken from the Tables for each *fifth* Noon, and interpolated for every Noon and Midnight by the continued addition of one-tenth of the difference, retaining throughout an additional figure: with the arguments so formed the places have been computed independently for every Mean Noon and Midnight of the Year, and second differences have been taken into account wherever the irregular variation of the Equations rendered such a correction appreciable. The Longitude has then been reduced to the True Equinox, and the results differenced to the fourth order, and carefully examined. Wherever the progression of the fourth differences indicated a probable error of more than $0''{\cdot}5$ the computations have been re-examined.

The Right Ascension and Declination have been computed for each noon and midnight, examined by means of differences to the fourth order, and interpolated for every hour. From these have been deduced the Right Ascension and Declination at Transit, on each day of the year.

The Lunar Distances from the Sun have been computed from Longitudes and Latitudes for each Noon and Midnight, examined by means of differences to the fourth order, and interpolated for every three hours. Those from the Planets and Stars have been computed from Right Ascensions and Declinations for every six hours, examined by means of differences to the second, third, and sometimes fourth order, according to the irregularity of their variation, and interpolated for every three hours. The Right Ascensions of the Stars have, however, been diminished by $0^s{\cdot}2$ in consequence of the alteration of the Equinox by POND, subsequently to the publication of Burckhardt's *Tables de la Lune*.

The Places of Mercury, Venus, and Mars, *from the Mean Equinox*, have been derived from LINDENAU's Tables*, assuming Greenwich to be $42^m\ 56^s$ West of Seeberg; and those of Jupiter, Saturn, and the Georgian, from BOUVARD's new Tables,† with a difference of meridians $= 9^m\ 21^s{\cdot}5$.

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* *Investigatio nova Orbitæ a Mercurio circa Solem descriptæ, accedunt Tabulæ Planetæ ex Elementis recentioribus reperiis et Theoria Gravitatis Illust.* De Laplace *constructæ. Auctore* BERNHARDO DE LINDENAU. Gothæ, 1813. 4to.

*Tabulæ Veneris novæ et correctæ ex Theoria Gravitatis clarissimi* De Laplace *et ex Observationibus recentissimis in speculo Astronomico Seebergensi habitis erutæ. Auctore* BERNHARDO DE LINDENAU. Gothæ, 1810. 4to.

*Tabulæ Martis novæ et correctæ ex Theoria Gravitatis clarissimi* De Laplace *et ex Observationibus recentissimis erutæ. Auctore* BERNHARDO DE LINDENAU. Eisenberg, 1811. 4to.

† *Tables Astronomiques publiées par le Bureau des Longitudes de France, contenant les Tables de Jupiter, de Saturne et d'Uranus, construites d'après la Théorie de la Mécanique Céleste: par* M. A. BOUVARD. Paris, 1821. 4to.

For Mercury, the Perturbations were obtained immediately from the Tables for each alternate Mean Noon and interpolated with first differences: the remainder of the calculations were performed independently for every Mean Noon.

For Venus, with the Mean Longitude of the Node diminished by 2′ 18″, the Heliocentric Longitude from the *True Equinox*, Latitude and Radius Vector, were computed independently for Mean Noon of every eighth day, then interpolated with fourth differences for each day. The Geocentric places were computed for every fourth day, and the intermediate values obtained by interpolating with fourth differences.

For Mars, the Heliocentric Longitude from the *True Equinox*, Latitude and Radius Vector, were obtained independently for Mean Noon of every twelfth day, and interpolated with fourth differences for each day. The Geocentric places were computed for every fourth day, and interpolated with fourth differences.

For Jupiter, Saturn, and the Georgian, the Heliocentric Longitude from the *True Equinox*, Latitude and Radius Vector, were computed for Mean Noon at intervals of thirty days; and interpolated, for each day, with second differences. The Geocentric places were obtained independently for every sixth day, and interpolated for every day, using differences to the fourth order.

It may be proper to notice that the place of Saturn on January 1, 1845, differs slightly from its place for the corresponding date, Dec. 32, in the NAUTICAL ALMANAC for 1844. This difference arises from an error* in BOUVARD's Tables, detected and communicated by Mr. AIRY, the Astronomer Royal, subsequently to the computation of Saturn's Ephemeris for 1844.

For the Minor Planets, with the Elements of the Orbits of Vesta, Pallas, and Ceres given at page viii of the NAUTICAL ALMANAC for 1844, and of Juno at page xii of the NAUTICAL ALMANAC for 1843, the Heliocentric Longitudes have been first computed and the periods of the next Oppositions ascertained approximately. Vesta, Juno, Pallas, and Ceres, are all in opposition in the year 1845. For each of these Planets the Variations of the Elements, caused by Venus, the Earth, Mars, Jupiter, and Saturn, have been computed for intervals of twelve days, for the whole period between the Oppositions, agreeably to the method described in Professor AIRY's paper, "*On the Calculation of the Perturbations of the Small Planets and the Comets of short period.*"—(APPENDIX to NAUTICAL ALMANAC, 1837, page 149).

For the Perturbations, the following masses of the disturbing Planets have been used: viz.—

| | | |
|---|---|---|
| Venus | $\frac{1}{401211}$ | (AIRY, *On the corrections in the Elements of* Delambre's *Solar Tables*, &c.—*Phil. Trans.*, 1828, page 30). |
| Earth | $\frac{1}{354936}$ | (*Système du Monde*, 5th Edition, page 209). |
| Mars | $\frac{1}{2680337}$ | (BURCKHARDT, *Conn. des Tems*, 1831, page 153). |

* *See* Errata, page xvi of NAUTICAL ALMANAC, 1843.

Jupiter $\frac{1}{1048 \cdot 70}$ (AIRY, *Mem. Ast. Soc.*, vol. vi. page 97).

Saturn $\frac{1}{3512}$ (*Système du Monde*, 5th Edition, page 209).

These variations have been applied to the Elements previously mentioned, for V Juno, and Ceres, but to the following New Elements for Pallas instead of those at viii. of the NAUTICAL ALMANAC for 1844.

PALLAS.

Epoch, 1844, May 6·0 Mean Time at Greenwich.

| | | | | |
|---|---|---|---|---|
| Mean Longitude of ⚳ | $\varepsilon$ | 207° 29′ 55″·9 | From Mean Equ of May 6, 184 |
| Longitude of the Perihelion | $\varpi$ | 121 27 18 ·3 | |
| Longitude of Ascending Node | $\nu$ | 172 40 59 ·5 | |
| Inclination of the Orbit | $i$ | 34 37 36 ·5 | |
| Angle of Excentricity | $\phi$ | 13 53 12 ·5 | |
| Mean daily Sidereal Motion | $n$ | 768″·72145 | |

These new Elements of Pallas were deduced from the following Elements, furni by Professor ENCKE, by applying the variations of the Elements, computed at this o for the difference of Epochs.

Epoch, 1844, May 10·0 Mean Time at Berlin.

| | | | |
|---|---|---|---|
| Mean Longitude of ⚳ | $\varepsilon$ | 208° 20′ 43″·1 | From Mean Equ of May 10, 18 |
| Longitude of the Perihelion | $\varpi$ | 121 27 15 ·7 | |
| Longitude of Ascending Node | $\nu$ | 172 41 0 ·2 | |
| Inclination of the Orbit | $i$ | 34 37 36 ·5 | |
| Angle of Excentricity | $\phi$ | 13 53 12 ·6 | |
| Mean daily Sidereal Motion | $n$ | 768″·72572 | |

The following are the resulting Elements for 1845:—

I. VESTA.

Epoch, 1845, December 3·0 Mean Time at Greenwich.

| | | | |
|---|---|---|---|
| Mean Longitude of ⚶ | $\varepsilon$ | 69° 32′ 15″·3 | From Mean Equ of Dec. 3, 184 |
| Longitude of the Perihelion | $\varpi$ | 251 2 37 ·4 | |
| Longitude of Ascending Node | $\nu$ | 103 20 3 ·4 | |
| Inclination of the Orbit | $i$ | 7 8 23 ·2 | |
| Angle of Excentricity | $\phi$ | 5 5 19 ·9 | |
| Mean daily Sidereal Motion | $n$ | 977″·43636 | |

& 1845, December 1, $9^h$ $22^m$·4 Mean Time at Greenwich.

II. JUNO.

Epoch, 1845, February 18·0 Mean Time at Greenwich.

| | | | |
|---|---|---|---|
| Mean Longitude of ⚵ | $\varepsilon$ | 115° 43′ 15″·1 | From Mean Equ of Feb. 18, 1 |
| Longitude of the Perihelion | $\varpi$ | 54 8 33 ·3 | |
| Longitude of Ascending Node | $\nu$ | 170 52 28 ·9 | |
| Inclination of the Orbit | $i$ | 13 3 5 ·6 | |
| Angle of Excentricity | $\phi$ | 14 42 23 ·7 | |
| Mean daily Sidereal Motion | $n$ | 813″·05349 | |

& 1845, February 11, $22^h$ $7^m$·7 Mean Time at Greenwich.

III. PALLAS.

Epoch, 1845, August 5·0 Mean Time at Greenwich.

| | | | | |
|---|---|---|---|---|
| Mean Longitude of ⚴ - - - | $\varepsilon$ - - - | 304° 56′ 26″·4 | From Mean Equinox of Aug. 5, 1845. |
| Longitude of the Perihelion | $\varpi$ - - - | 121 22 43 ·5 | |
| Longitude of Ascending Node | $\nu$ - - - | 172 41 48 ·1 | |
| Inclination of the Orbit - - | $i$ - - - | 34 37 40 ·2 | |
| Angle of Excentricity - - - | $\phi$ - - - | 13 54 1 ·2 | |
| Mean daily Sidereal Motion | $n$ - - - | 769″·16607 | |

8 1845, July 31, $13^h$ $18^m$·0 Mean Time at Greenwich.

IV. CERES.

Epoch, 1845, August 17·0 Mean Time at Greenwich.

| | | | |
|---|---|---|---|
| Mean Longitude of ⚳ - - - | $\varepsilon$ - - - | 327° 41′ 7″·8 | From Mean Equinox of Aug. 17, 1845. |
| Longitude of the Perihelion | $\varpi$ - - - | 148 14 6 ·2 | |
| Longitude of Ascending Node | $\nu$ - - - | 80 48 18 ·7 | |
| Inclination of the Orbit - - | $i$ - - - | 10 37 8 ·7 | |
| Angle of Excentricity - - | $\phi$ - - - | 4 32 58 ·9 | |
| Mean daily Sidereal Motion | $n$ - - - | 771″·53786 | |

8 1845, August 20, $21^h$ $38^m$·9 Mean Time at Greenwich.

With these Elements and their Variations for intervals of twelve days preceding and following their respective Epochs, the Places of these Planets at Mean Noon about the times of their Oppositions were obtained.

At the suggestion of the Astronomer Royal, the accurate Ephemeris of Vesta has been extended to six months, that is to say, three months *preceding*, and three *following* the opposition, with a view to the improvement of the theory of this Planet. The limits of one month preceding and following opposition have been found very inadequate to meet the wants of observers; and it will be necessary to compute numerous places of Vesta before *all* the observations made in past years can be rendered available.

At the opposition in March 1836, the Planet was observed at Greenwich from December 10, 1835, to May 14, 1836, being 97 days *before*, and 59 *after*, opposition; and at Cambridge until May 21, being 66 days *after* opposition.

At the opposition in September, 1837, it was observed at Greenwich, from August 3 to October 31; at Cambridge, from August 17 to December 23; and at the opposition of December, 1838, it was observed at Greenwich, from October 17, 1838, to February 27, 1839; or 73 days *before* and 60 *after* opposition.

The Approximate Ephemerides of Vesta, Pallas, and Ceres, were deduced from the Elements at page viii of the NAUTICAL ALMANAC for 1844: and the approximate Ephemeris of Juno from the Elements at page viii of the NAUTICAL ALMANAC for 1843, to the Epochs of the Elements for 1845, and from these latter Elements for the remainder of the year.

The Ephemeris of each of the Planets, Mercury, Venus, Mars, Jupiter, Saturn, and the Georgian, at the Time of Transit, has been computed for each day of the Year from their Places at Mean Noon. That of each of the Minor Planets, about their respective Oppositions, from the accurate Noon Ephemeris.

The Semidiameters of the Planets, at the Mean Distance of the Earth from the Sun, have been adopted as follow:

| | | | | |
|---|---|---|---|---|
| Mercury, | Eq. | Sem. | 3″·23 | (Lindenau's *Tables of Mercury*, page 38) |
| Venus, | Eq. | Sem. | 8 ·25 | (Delambre's *Astronomy*, vol. ii. page 620) |
| Mars, | Eq. | Sem. | 4 ·435 | (Littrow's *Astronomy*, vol. ii. page 389) |
| Jupiter, | Eq. | Sem. | 99 ·704 | (*Mem. Ast. Soc.*, vol. iii. page 301) |
| Saturn, | Eq. | Sem. | 81 ·106 | (*Ast. Nach.* N° 189) |
| Georgian, | Eq. | Sem. | 37 ·25 | (Delambre's *Astronomy*, vol. ii. page 620) |

The Eclipses of Jupiter's Satellites have been computed, in duplicate, from "*Tables Écliptiques des Satellites de Jupiter, d'après la théorie de leurs attractions mutuelles et les constantes déduites des Observations.* Par le Baron Damoiseau. Publiées par le Bureau des Longitudes. Paris, 1836," using $9^m\ 21^s{\cdot}5$ for the difference of meridians.

It was formerly the practice to direct the attention of observers to those Eclipses only which happened when Jupiter was not less than 8° above the Horizon and the Sun 8° below. It appearing, however, by a paper read before the Royal Astronomical Society on April 13, 1838, (*Ast. Soc. Notices*, vol. iv. p. 131,) that Mr. Riddle observed the Emersions of the First and Second Satellites at Greenwich on April 9, 1838, without difficulty, when the Sun was much less than 8° below the Horizon, a new limit was adopted in the year 1842, and while the asterisk has been retained to indicate the Visibility agreeably to the old limits, a dagger is used to indicate that Jupiter is *above* the Horizon and the Sun *below*.

For the Configurations and Occultations of the Satellites, as well as the Transits of the Satellites and their Shadows over the disc of the Planet, Mr. Woolhouse's Tables in the Appendix to the Nautical Almanac for 1835 have been used, with the exception of Table II. of each Satellite, which has been reconstructed to adapt it to Damoiseau's New Tables.

The Elements at page 551, for determining the appearance of Saturn's Ring, have been calculated by means of the formulæ* at page viii of the Nautical Almanac for 1836, adopting Bessel's later determinations of the values of $\Omega$, $i$ and $a'$, viz.:—

$$\left.\begin{aligned} \Omega &= 166^\circ\ 53'\ \ 8''{\cdot}9 + 46''{\cdot}462\ (t - 1800) \\ i &= 28\ \ 10\ \ 44\ {\cdot}7 - \ \ 0\ {\cdot}350\ (t - 1800) \end{aligned}\right\} \textit{Ast. Nach.}, \text{No. 274, col. 167.}$$

$$a' = 39''{\cdot}308\ (\textit{Ast. Nach.}, \text{No. 275, col. 170}),$$

the mean distance of the Planet from the Sun being taken $= 9{\cdot}54301$, agreeably to Bouvard's Tables of Saturn, instead of $9{\cdot}5421889$, the value used by Bessel in the reduction of his observations.

The Mean Places of the 100 Principal Fixed Stars for Jan. 1, 1845, together with the Annual Variations, have been derived from the fundamental Catalogue for 1830, contained in the *Second Edition* of the Nautical Almanac for 1834, pages 362 to 367, by means of the Formulæ at page xiv of the Preface to that Volume, and the following table of corrections.

* See Errata in the Nautical Almanac for 1840, page xv.

CORRECTIONS

applied to the Mean Places of the following Stars for 1845, as deduced from the Standard Catalogue in the Second Edition of the NAUTICAL ALMANAC for 1834, to satisfy the Greenwich Observations of 1836, 1837, 1838, and 1839.

| Star's Name. | Correction of R. A. | No. of Observations in | | | | Correction of Declination | No. of Observations in | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1836. | 1837. | 1838. | 1839. | | 1836. | 1837. | 1838. | 1839. |
| | s | | | | | " | | | | |
| α Andromedæ - - - | +0 ·11 | - - | - - | - - | 12 | −1 ·99 | - - | - - | 10 | 14 |
| γ Pegasi - - - - - | −0 ·09 | - - | - - | - - | 12 | −1 ·32 | - - | - - | 14 | 11 |
| α Cassiopeæ - - - | +0 ·29 | - - | - - | - - | 13 | −0 ·12 | - - | - - | 29 | 12 |
| β Ceti - - - - - - | 0 ·00 | - - | - - | 16 | 9 | −3 ·17 | - - | - - | 10 | 15 |
| α Ursæ Minoris - - | +0 ·97 | - - | - - | - - | 60 | +0 ·12 | - - | - - | - - | 87 |
| θ¹ Ceti - - - - - - | −0 ·13 | - - | - - | - - | 20 | −3 ·77 | - - | - - | 6 | 15 |
| α Arietis - - - - - | +0 ·17 | - - | - - | - - | 12 | −2 ·60 | - - | - - | 18 | 11 |
| γ Ceti - - - - - - | −0 ·20 | - - | - - | 11 | 9 | −3 ·47 | - - | - - | 12 | 19 |
| α Ceti - - - - - - | −0 ·03 | - - | - - | - - | 15 | −1 ·64 | - - | - - | - - | 20 |
| α Persei - - - - - | +0 ·05 | - - | - - | - - | 16 | −0 ·60 | - - | - - | 20 | 16 |
| η Tauri - - - - - | +0 ·06 | - - | - - | - - | 14 | −1 ·37 | - - | - - | 18 | 13 |
| γ¹ Eridani- - - - - | +0 ·01 | - - | - - | - - | 10 | −2 ·76 | - - | - - | 19 | 12 |
| α Tauri - - - - - | +0 ·07 | - - | - - | - - | 16 | −2 ·95 | - - | - - | 30 | 17 |
| α Aurigæ - - - - - | +0 ·20 | - - | - - | - - | 11 | −4 ·78 | - - | - - | - - | 34 |
| β Orionis - - - - - | +0 ·02 | - - | - - | - - | 24 | −1 ·61 | - - | - - | 24 | 12 |
| β Tauri - - - - - | +0 ·01 | - - | - - | - - | 16 | −3 ·46 | - - | - - | 16 | 18 |
| δ Orionis- - - - - | −0 ·11 | - - | - - | - - | 10 | −0 ·53 | 3 | - - | 3 | 14 |
| α Leporis - - - - | −0 ·01 | - - | - - | - - | 13 | −1 ·37 | 9 | 2 | 4 | 6 |
| ε Orionis - - - - - | −0 ·04 | - - | - - | 9 | 8 | - - | - - | - - | - - | - - |
| α Columbæ - - - - | - - | - - | - - | - - | - - | −3 ·17 | - - | 4 | 9 | 10 |
| α Orionis - - - - - | +0 ·02 | - - | - - | - - | 21 | −1 ·81 | - - | - - | - - | 24 |
| μ Geminorum - - - | +0 ·05 | - - | - - | - - | 16 | −2 ·12 | - - | - - | - - | 29 |
| 51 (Hev) Cephei - - | - - | - - | - - | - - | - - | +1 ·80 | - - | - - | 6 | 18 |
| α Canis Majoris - - | +0 ·25 | - - | - - | - - | 26 | −1 ·21 | - - | - - | - - | 22 |
| ε Canis Majoris - - | −0 ·08 | 1 | - - | 1 | 8 | −1 ·44 | 18 | 6 | - - | 8 |
| δ Geminorum - - - | −0 ·08 | - - | - - | 14 | 7 | −0 ·75 | - - | - - | 12 | 14 |
| α² Geminorum - - - | −0 ·14 | - - | - - | - - | 13 | −2 ·54 | - - | - - | - - | 20 |
| α Canis Minoris - - | −0 ·16 | - - | - - | - - | 17 | −1 ·50 | - - | - - | 22 | 13 |
| β Geminorum - - - | −0 ·02 | - - | - - | - - | 20 | −2 ·68 | - - | - - | 16 | 15 |
| 15 Argus - - - - - | −0 ·11 | - - | - - | - - | 12 | −2 ·31 | - - | - - | - - | 22 |
| ε Hydræ - - - - - | −0 ·16 | - - | - - | - - | 13 | −1 ·37 | - - | - - | - - | 22 |
| ι Ursæ Majoris - - | +0 ·20 | - - | - - | - - | 11 | −1 ·44 | - - | - - | 4 | 16 |
| α Hydræ - - - - - | −0 ·10 | - - | - - | - - | 10 | −2 ·06 | - - | 2 | 6 | 13 |
| θ Ursæ Majoris - - | +0 ·02 | - - | - - | - - | 11 | +0 ·10 | - - | 20 | 10 | 6 |
| ε Leonis - - - - - | −0 ·06 | - - | - - | 6 | 6 | −1 ·40 | - - | - - | 12 | 17 |
| α Leonis - - - - | −0 ·20 | - - | - - | - - | 19 | −2 ·52 | - - | - - | - - | 28 |
| α Ursæ Majoris - - | −0 ·06 | - - | 20 | 5 | 3 | −1 ·74 | - - | - - | - - | 27 |
| δ Leonis - - - - - | +0 ·09 | - - | - - | 25 | 8 | −3 ·48 | - - | - - | 25 | 8 |
| δ Hydræ et Crateris | −0 ·11 | - - | - - | - - | 10 | −0 ·99 | - - | - - | 18 | 10 |
| β Leonis - - - - - | −0 ·03 | - - | - - | - - | 19 | −3 ·11 | - - | - - | 16 | 18 |
| γ Ursæ Majoris - - | +0 ·15 | - - | - - | 6 | 6 | −1 ·39 | - - | - - | 28 | 16 |
| β Corvi - - - - - | −0 ·04 | - - | - - | - - | 17 | −4 ·48 | - - | - - | 16 | 15 |
| 12 Canum Venat. - - | −0 ·35 | - - | - - | - - | 16 | −0 ·37 | - - | - - | 20 | 19 |

CORRECTIONS (*continued*).

| Star's Name. | Correction of R. A. | No. of Observations in | | | | Correction of Declination. | No. of Observations in | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1836. | 1837. | 1838. | 1839. | | 1836. | 1837. | 1838. | 1839. |
| | s | | | | | " | | | | |
| α Virginis - - - - | —0 ·03 | - - | - - | - - | 22 | —2 ·79 | - - | - - | 16 | 14 |
| η Ursæ Majoris - - | +0 ·27 | - - | - - | - - | 14 | —1 ·11 | - - | - - | 36 | 9 |
| η Bootis - - - - - | —0 ·17 | - - | - - | - - | 14 | —4 ·90 | - - | - - | 20 | 16 |
| α Bootis - - - - - | 0 ·00 | - - | - - | - - | 20 | —1 ·95 | - - | - - | - - | 31 |
| ε Bootis - - - - - | —0 ·03 | - - | - - | - - | 16 | —0 ·69 | - - | - - | - - | 25 |
| $\alpha^2$ Libræ - - - - - | —0 ·17 | - - | - - | - - | 10 | —3 ·85 | - - | 16 | 4 | 11 |
| β Ursæ Minoris - - | +0 ·17 | - - | - - | 8 | 5 | —0 ·32 | - - | - - | - - | 53 |
| β Libræ - - - - - | —0 ·16 | - - | - - | 12 | 6 | —1 ·49 | - - | 16 | 4 | 14 |
| α Coronæ Borealis - | +0 ·05 | - - | - - | - - | 14 | —2 ·58 | - - | - - | 27 | 19 |
| α Serpentis - - | +0 ·01 | - - | - - | - - | 16 | —2 ·44 | - - | - - | 19 | 11 |
| ζ Ursæ Minoris - - | +0 ·26 | - - | 3 | 7 | 2 | +0 ·05 | - - | - - | - - | 21 |
| $\beta^1$ Scorpii - - - - - | —0 ·13 | - - | - - | - - | 11 | —3 ·54 | - - | - - | 8 | 15 |
| δ Ophiuchi - - - - | —0 ·03 | - - | - - | - - | 17 | —4 ·48 | - - | - - | 20 | 17 |
| α Scorpii- - - - - | —0 ·01 | - - | - - | - - | 15 | —0 ·51 | - - | 10 | 4 | 13 |
| η Draconis - - - - | +0 ·26 | - - | 7 | 3 | 6 | +0 ·99 | - - | - - | - - | 20 |
| ε Ursæ Minoris - - | - - | - - | - - | - - | - - | —0 ·06 | - - | - - | - - | 33 |
| α Herculis - - - - | —0 ·07 | - - | - - | - - | 19 | —1 ·44 | - - | - - | - - | 23 |
| β Draconis - - - - | +0 ·07 | - - | 6 | 2 | 7 | —0 ·17 | - - | - - | 10 | 13 |
| α Ophiuchi - - - - | +0 ·02 | - - | - - | - - | 11 | —4 ·62 | - - | - - | - - | 25 |
| γ Draconis - - - - | —0 ·05 | - - | - - | - - | 23 | +0 ·11 | - - | - - | - - | 24 |
| $\mu^1$ Sagittarii - - - - | —0 ·14 | - - | - - | - - | 14 | —4 ·85 | - - | 20 | 2 | 13 |
| δ Ursæ Minoris - - | —0 ·28 | - - | 16 | - - | 8 | +1 ·74 | - - | - - | - - | 34 |
| α Lyræ - - - - - | +0 ·13 | - - | - - | - - | 22 | +1 ·93 | - - | - - | - - | 48 |
| β Lyræ - - - - - | —0 ·07 | - - | - - | - - | 25 | —0 ·67 | - - | - - | - - | 36 |
| ζ Aquilæ- - - - - | —0 ·02 | - | - - | - - | 16 | —2 ·91 | - - | - - | - - | 25 |
| δ Aquilæ- - - - - | +0 ·14 | - - | - - | - - | 20 | —1 ·39 | - - | - - | 10 | 13 |
| γ Aquilæ- - - - - | —0 ·04 | - - | - - | - - | 18 | —1 ·69 | - - | - - | 17 | 17 |
| α Aquilæ- - - - - | —0 ·04 | - - | - - | - - | 30 | +1 ·76 | - - | - - | - - | 22 |
| β Aquilæ- - - - - | —0 ·08 | - - | - - | - - | 14 | —1 ·74 | - - | - - | 24 | 10 |
| $\alpha^2$ Capricorni - - - | —0 ·02 | - - | - - | - - | 12 | —3 ·00 | - - | - - | 4 | 19 |
| λ Ursæ Minoris - - | —0 ·31 | - - | 7 | 2 | 4 | +0 ·49 | - - | - - | 20 | 14 |
| α Cygni - - - - - | —0 ·04 | - - | - - | - - | 17 | +0 ·29 | - - | - - | - - | 47 |
| 61 Cygni - - - - - | —0 ·50 | - - | - - | - - | 30 | —2 ·83 | - - | - - | - - | 30 |
| ζ Cygni - - - - - | —0 ·05 | - - | - - | - - | 25 | —1 ·89 | - - | - - | 12 | 18 |
| α Cephei - - - - - | +0 ·29 | - - | - - | - - | 12 | +1 ·16 | - - | - - | - - | 30 |
| β Aquarii- - - - - | —0 ·02 | - - | - - | - - | 12 | —2 ·08 | - - | 22 | 10 | 9 |
| β Cephei - - - - - | +0 ·07 | - - | - - | 7 | 8 | —0 ·40 | - - | - - | 24 | 15 |
| ε Pegasi - - - - - | —0 ·04 | - - | - - | - - | 13 | —1 ·95 | - - | 30 | 4 | 8 |
| α Aquarii- - - - - | —0 ·10 | - - | - - | - - | 10 | —2 ·33 | - - | - - | 20 | 10 |
| Pegasi - - - - - | +0 ·07 | - - | - - | - - | 15 | —1 ·08 | - - | - - | 24 | 9 |
| [illegible]scis Australis - | 0 ·00 | - - | - - | 9 | 8 | —1 ·96 | - - | 16 | 6 | 10 |
| [illegible]si - - - - - | —0 ·03 | - - | - - | - - | 14 | —2 ·61 | - - | 30 | 12 | 6 |
| [illegible]n - - - - | +0 ·13 | - - | - - | 8 | 6 | —0 ·30 | - - | - - | 20 | 12 |
| [illegible] - - - - | —0 ·28 | - - | 4 | 3 | 4 | +0 ·68 | - - | - - | - - | 20 |

The preceding corrections have been obtained by a comparison of the deductions from the Standard Catalogue with *not less* than 10 of the later Greenwich Observations of Right Ascension, or 20 of Declination. Where the Greenwich Observations in the year 1839 have not furnished the requisite number, recourse has been had to the Observations of 1838, 1837 or 1836.

The Logarithms of A, B, C, D, at page XXII. of each Month, have been computed agreeably to the Formulæ at page 439, omitting only in the Values of C and D, the terms $-0{\cdot}004 \sin 2 ☾$ and $-0''{\cdot}090 \cos 2 ☾$; and for the only Stars that can be sensibly affected by the omission, viz. the five Polar Stars, a Table of Corrections is given at pages 482 and 483.

The Table of Constants at pages 440 and 441 for facilitating the Reduction of Stars *generally*, has been computed from BESSEL's Formulæ, given at page 439, using the A, B, C, D, contained in this volume.

The apparent places of 95 of the principal Stars have been deduced from the Mean Places for January 1, 1845, using the Variables A, B, C, D in the present Volume with new constants computed for the year 1840, instead of the constants in the Astronomical Society's Catalogue for 1830. For the five Polar Stars the constants have been computed for 1845 and 1846, and interpolated. The corrections were computed independently for every tenth day, with the exception of those for $\alpha$ and $\delta$ URSÆ MINORIS, which were interpolated, with second differences, from computations made for every third day of the year.

A further correction of the right ascension for *daily* aberration is necessary, where extreme accuracy is required, and may be computed as follows: Let $\phi$ denote the latitude of the place, and $\delta$ the declination of the Star, then the correction (*in time*) for the *upper* transit is,

$$+ 0^{s}{\cdot}0206 \cos \phi \sec \delta$$

and for the *lower* transit,

$$- 0^{s}{\cdot}0206 \cos \phi \sec \delta$$

The Lists of Moon-Culminating Stars and Occultations have been selected from Mr. FRANCIS BAILY's Catalogue of Zodiacal Stars. (London, 1827.)

The Mean Places of the Stars for both Lists were taken in order of preference, 1. From the Catalogue of the 100 Stars in this Work. 2. From Mr. POND's printed Catalogue of 1112 Stars. 3. From the Astronomical Society's Catalogue. The reduction of the Mean to the Apparent Places has been performed by means of the Astronomical Society's Constants; the corrections for each star on the contiguous days being obtained by different computers for the Moon-Culminating List, and those for the Occultations by duplicate computations.

The calculations of the Elements of Occultations, the Occultations visible at Greenwich, the Solar and Lunar Eclipses, and the Transit of Mercury, have been made in the manner described by Mr. WOOLHOUSE in the Appendix to the NAUTICAL ALMANAC for 1836: those relating to the Occultations in duplicate.

The Stars proper to be observed with Mars at the Opposition in 1845, were selected by Professor HENDERSON, and their apparent places computed by means of the Constants at pages 440 and 441 of the present Volume.

The Tides at London Bridge for the year 1845 have been computed from tables in "An Elementary Treatise on the Tides. By J. W. LUBBOCK, Esq." (London, 1839.)

# PREFACE.

The Tables for finding the Latitude of a place by Observations of the Pole Star ($\alpha$ Ursæ Minoris), at any hour of the day, are founded on the following formula:

$$l = a - p \cos h + \tfrac{1}{2} \sin 1'' (p \sin h)^2 \tan a$$

where $l$ denotes the latitude

$a$ —— the true altitude of the Star

$p$ —— the apparent polar distance, expressed in seconds of arc

$h$ —— the hour angle of the Star $= S - \alpha$; S being the sidereal time of observation, and $\alpha$ the right ascension of the Star.

Table I contains the value of the *second* term ($p \cos h$) or the *first correction;* assuming, as *mean* values, $p = 90'\ 15''$, and $\alpha = 16^\circ\ 5'$.

Table II contains the value of the *third* term $\left(\tfrac{1}{2} \sin 1'' (p \sin h)^2 \tan a\right)$ or the *second correction*, using the same *mean* quantities as in Table I. In the NAUTICAL ALMANAC for the Years 1834 to 1844 inclusive, the arguments of this table have been "Sidereal Time" and "Approximate Latitude," instead of Sidereal Time and Altitude, and the consequent error being very small in amount has escaped detection. In the present Volume the proper arguments have been inserted.

Table III, which is *special* for the year 1845, and depends upon the difference between the true and assumed values of $p$ and $\alpha$, contains the *third* correction increased by $1'$ for the purpose of rendering the quantities additive.

A fourth term $\left(-\tfrac{1}{2} \sin^2 1'' (p \cos h)(p \sin h)^2\right)$ is omitted, its greatest value being only $0''\cdot55$.

In the construction of this Ephemeris generally, duplicate computations have been made where necessary, and independent calculations performed to guard against errors in principle, and all results admitting of such test finally examined by means of differences.

W. S. STRATFORD,
Superintendent of the Nautical Almanac.

*Nautical Almanac Office,*
*Somerset House, London.*
*December* 1, 1841.

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# ERRATA.

(*Continued from* page xvi *of the Nautical Almanac for* 1844.)

## I.—NAUTICAL ALMANAC FOR THE YEAR 1844.

(*In some Copies*)

Page vii, line 26, *for* Juno *read* Pallas.

## II.—NAUTICAL ALMANAC FOR THE YEAR 1845.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Page 201 | Oct. 3 | Semidiam. | *for* | 16 ·1 | *read* | 16 1 ·1 |
| — 286 | Oct. 2 | Right Ascension | — | 11 35 41 ·66 | — | 11 35 14 ·66 |
| — 434 | Dec. 13 | Mer. Passage | — | 6 5 ·2 | — | 6 55 ·2 |
| — 494 | April 10 | Sid. time of ☾'s Sem. pas. Mer. | — | 6 ·69 | — | 65 ·69 |

— 512 in the column of Dates, *for* Sept. 9 *read* Sept. 8, and in the following line, insert 9 opposite $\eta$ Ophiuchi.

## PRINCIPAL ARTICLES OF THE CALENDAR,
For the Year 1845.

| | | | |
|---|---|---|---|
| Golden Number | 3 | Dominical Letter | E |
| Epact | 22 | Roman Indiction | 3 |
| Solar Cycle | 6 | Julian Period | 6558 |

## FIXED AND MOVEABLE FESTIVALS, ANNIVERSARIES, *&c., &c.*

| | | | |
|---|---|---|---|
| Epiphany | Jan. 6 | *Pentecost—Whit Sunday* | May 11 |
| *Septuagesima Sunday* | 19 | *Trinity Sunday* | 18 |
| Martyrdom of K. Charles I. | 30 | *Corpus Christi* | 22 |
| *Quinquagesima—Shrove Sunday* | Feb. 2 | Birth of Q. Victoria | 24 |
| *Ash Wednesday* | 5 | Restoration of K. Charles II. | 29 |
| *Quadragesima—1st Sunday in Lent* | 9 | Accession of Q. Victoria | June 20 |
| St. David | Mar. 1 | Proclamation | 21 |
| *Palm Sunday* | 16 | St. John Bapt.—Midsum. Day | 24 |
| St. Patrick | 17 | Birth of Dowager Q. Adelaide | Aug. 13 |
| *Good Friday* | 21 | St. Michael—Michaelmas Day | Sept. 29 |
| *EASTER SUNDAY* | 23 | Gunpowder Plot | Nov. 5 |
| Annunciation—Lady Day | 25 | Birth of Prince of Wales | 9 |
| *Low Sunday* | 30 | St. Andrew | 30 |
| St. George | Apr. 23 | *1st Sunday in Advent* | 30 |
| *Rogation Sunday* | 27 | St. Thomas | Dec. 21 |
| *Ascension Day—Holy Thursday* | May 1 | Christmas Day | 25 |

The Year 5606 of the Jewish Era commences on October 2, 1845.

The Year 1261 of the Mohammedan Era commences on Jan. 10, 1845.

Ramadân (Month of Abstinence observed by the Turks) commences on September 3, 1845.

## EXPLANATION OF
## ASTRONOMICAL SYMBOLS AND ABBREVIATIONS.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☉ | The Sun. | ☌ | Conjunction. | | | | ° |
| ☾ | The Moon. | □ | Quadrature. | 0. | ♈ | Aries. - - | 0 |
| ☿ | Mercury. | ☍ | Opposition. | I. | ♉ | Taurus. - | 30 |
| ♀ | Venus. | ☊ | Ascending Node. | II. | ♊ | Gemini. - | 60 |
| ⊖ or ♁ | The Earth. | ☋ | Descending Node. | III. | ♋ | Cancer. - | 90 |
| ♂ | Mars. | N. | North. S. South. | IV. | ♌ | Leo. - - - | 120 |
| ⚶ | Vesta. | E. | East. W. West. | V. | ♍ | Virgo. - - | 150 |
| ⚵ | Juno. | ° | Degrees. | VI. | ♎ | Libra. - - | 180 |
| ⚴ | Pallas. | ′ | Minutes of Arc. | VII. | ♏ | Scorpio. - | 210 |
| ⚳ | Ceres. | ″ | Seconds of Arc. | VIII. | ♐ | Sagittarius. | 240 |
| ♃ | Jupiter. | ʰ | Hours. | IX. | ♑ | Capricornus. | 270 |
| ♄ | Saturn. | ᵐ | Minutes of Time. | X. | ♒ | Aquarius. - | 300 |
| ♅ | The Georgian. | ˢ | Seconds of Time. | XI. | ♓ | Pisces. - - | 330 |

## LAW TERMS, 1845,

As settled by Statutes 1 WILL. IV. { cap. 70, s. 6. (Passed July 23, 1830.) / cap. 3, s. 2. (Passed Dec. 23, 1830.)

| | | |
|---|---|---|
| HILARY TERM - - - - | *Begins* Jan. 11 | *Ends* Jan. 31 |
| EASTER - - - - - - - - - - - | Apr. 15 | - - May 8 |
| TRINITY - - - - - - - - - - - | May 22 | - - June 12 |
| MICHAELMAS - - - - - - - - - | Nov. 2 | - - Nov. 25 |

For Returns see Statute 1 WILL. IV. cap. 3, s. 2. (Passed Dec. 23, 1830.)

## UNIVERSITY TERMS, 1845.

| Terms. | OXFORD. | | CAMBRIDGE. | | |
|---|---|---|---|---|---|
| | *Begins.* | *Ends.* | *Begins.* | *Divides.* | *Ends.* |
| Lent - - - | Jan. 14 | Mar. 15 | Jan. 13 | Feb. 12, Noon. | Mar. 14 |
| Easter - - | April 2 | May 10 | April 2 | May 18, Midnight. | July 4 |
| Trinity - - | May 14 | July 5 | - - - | - - - - - - - | - - - |
| Michaelmas - | Oct. 10 | Dec. 17 | Oct. 10 | Nov. 12, Midnight. | Dec. 16 |
| | *The Act*, July 1. | | *The Commencement*, July 1. | | |

# EPHEMERIS

FOR THE YEAR

# 1845,

FOR THE MERIDIAN

OF THE

# ROYAL OBSERVATORY AT GREENWICH.

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to Apparent Time.* | D f 1 |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| Wed. | 1 | 18 47 56·44 | 11·034 | S. 23 0 2·5 | 13·23 | 1 10·98 | 3 56·93 | 1 |
| Thur. | 2 | 18 52 21·26 | 11·020 | 22 54 45·1 | 14·37 | 1 10·93 | 4 25·12 | 1 |
| Frid. | 3 | 18 56 45·74 | 11·004 | 22 49 0·3 | 15·50 | 1 10·88 | 4 52·97 | 1 |
| Sat. | 4 | 19 1 9·84 | 10·987 | 22 42 48·3 | 16·63 | 1 10·82 | 5 20·43 | 1 |
| *Sun.* | 5 | 19 5 33·53 | 10·969 | 22 36 9·2 | 17·75 | 1 10·76 | 5 47·49 | 1 |
| Mon. | 6 | 19 9 56·78 | 10·949 | 22 29 3·2 | 18·86 | 1 10·70 | 6 14·11 | 1 |
| Tues. | 7 | 19 14 19·55 | 10·928 | 22 21 30·6 | 19·96 | 1 10·63 | 6 40·25 | 1 |
| Wed. | 8 | 19 18 41·83 | 10·906 | 22 13 31·6 | 21·05 | 1 10·56 | 7 5·90 | 1 |
| Thur. | 9 | 19 23 3·57 | 10·883 | 22 5 6·4 | 22·13 | 1 10·49 | 7 31·02 | 1 |
| Frid. | 10 | 19 27 24·75 | 10·858 | 21 56 15·4 | 23·20 | 1 10·41 | 7 55·57 | |
| Sat. | 11 | 19 31 45·34 | 10·832 | 21 46 58·7 | 24·25 | 1 10·33 | 8 19·54 | |
| *Sun.* | 12 | 19 36 5·30 | 10·805 | 21 37 16·7 | 25·30 | 1 10·25 | 8 42·88 | |
| Mon. | 13 | 19 40 24·63 | 10·778 | 21 27 9·6 | 26·33 | 1 10·16 | 9 5·59 | |
| Tues. | 14 | 19 44 43·29 | 10·749 | 21 16 37·8 | 27·35 | 1 10·07 | 9 27·64 | |
| Wed. | 15 | 19 49 1·26 | 10·720 | 21 5 41·5 | 28·35 | 1 9·98 | 9 48·99 | |
| Thur. | 16 | 19 53 18·54 | 10·690 | 20 54 21·1 | 29·34 | 1 9·89 | 10 9·65 | |
| Frid. | 17 | 19 57 35·09 | 10·659 | 20 42 36·9 | 30·32 | 1 9·79 | 10 29·59 | |
| Sat. | 18 | 20 1 50·90 | 10·628 | 20 30 29·2 | 31·28 | 1 9·69 | 10 48·79 | |
| *Sun.* | 19 | 20 6 5·96 | 10·596 | 20 17 58·4 | 32·24 | 1 9·59 | 11 7·25 | |
| Mon. | 20 | 20 10 20·26 | 10·564 | 20 5 4·7 | 33·18 | 1 9·49 | 11 24·94 | |
| Tues. | 21 | 20 14 33·79 | 10·531 | 19 51 48·5 | 34·10 | 1 9·39 | 11 41·87 | |
| Wed. | 22 | 20 18 46·53 | 10·499 | 19 38 10·2 | 35·01 | 1 9·29 | 11 58·01 | |
| Thur. | 23 | 20 22 58·50 | 10·465 | 19 24 10·0 | 35·90 | 1 9·18 | 12 13·38 | |
| Frid. | 24 | 20 27 9·67 | 10·432 | 19 9 48·4 | 36·78 | 1 9·07 | 12 27·96 | |
| Sat. | 25 | 20 31 20·05 | 10·399 | 18 55 5·7 | 37·64 | 1 8·96 | 12 41·75 | |
| *Sun.* | 26 | 20 35 29·63 | 10·366 | 18 40 2·3 | 38·49 | 1 8·85 | 12 54·74 | |
| Mon. | 27 | 20 39 38·42 | 10·332 | 18 24 38·5 | 39·33 | 1 8·74 | 13 6·93 | |
| Tues. | 28 | 20 43 46·39 | 10·299 | 18 8 54·7 | 40·15 | 1 8·63 | 13 18·32 | |
| Wed. | 29 | 20 47 53·57 | 10·265 | 17 52 51·2 | 40·94 | 1 8·51 | 13 28·91 | |
| Thur. | 30 | 20 51 59·94 | 10·232 | 17 36 28·6 | 41·73 | 1 8·40 | 13 38·70 | |
| Frid. | 31 | 20 56 5·50 | 10·198 | 17 19 47·1 | 42·49 | 1 8·28 | 13 47·68 | |
| Sat. | 32 | 21 0 10·26 | | S. 17 2 47·3 | | 1 8·17 | 13 55·87 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·19 from the *Sidereal*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| ed. | 1 | 18 47 55 ·71 | S. 23 0 3 ·4 | 16 17 ·3 | 3 56 ·85 | 18 43 58 ·86 |
| hur. | 2 | 18 52 20 ·45 | 22 54 46 ·2 | 16 17 ·3 | 4 25 ·04 | 18 47 55 ·42 |
| id. | 3 | 18 56 44 ·85 | 22 49 1 ·6 | 16 17 ·3 | 4 52 ·87 | 18 51 51 ·97 |
| t. | 4 | 19 1 8 ·86 | 22 42 49 ·8 | 16 17 ·3 | 5 20 ·33 | 18 55 48 ·53 |
| n. | 5 | 19 5 32 ·47 | 22 36 10 ·9 | 16 17 ·2 | 5 47 ·38 | 18 59 45 ·09 |
| on. | 6 | 19 9 55 ·64 | 22 29 5 ·2 | 16 17 ·2 | 6 13 ·99 | 19 3 41 ·65 |
| es. | 7 | 19 14 18 ·34 | 22 21 32 ·9 | 16 17 ·2 | 6 40 ·13 | 19 7 38 ·20 |
| ed. | 8 | 19 18 40 ·54 | 22 13 34 ·1 | 16 17 ·1 | 7 5 ·78 | 19 11 34 ·76 |
| hur. | 9 | 19 23 2 ·21 | 22 5 9 ·2 | 16 17 ·1 | 7 30 ·89 | 19 15 31 ·32 |
| id. | 10 | 19 27 23 ·31 | 21 56 18 ·4 | 16 17 ·1 | 7 55 ·44 | 19 19 27 ·88 |
| t. | 11 | 19 31 43 ·83 | 21 47 2 ·1 | 16 17 ·0 | 8 19 ·40 | 19 23 24 ·43 |
| n. | 12 | 19 36 3 ·73 | 21 37 20 ·4 | 16 16 ·9 | 8 42 ·74 | 19 27 20 ·99 |
| on. | 13 | 19 40 23 ·00 | 21 27 13 ·6 | 16 16 ·9 | 9 5 ·45 | 19 31 17 ·55 |
| es. | 14 | 19 44 41 ·60 | 21 16 42 ·1 | 16 16 ·8 | 9 27 ·50 | 19 35 14 ·10 |
| ed. | 15 | 19 48 59 ·51 | 21 5 46 ·2 | 16 16 ·8 | 9 48 ·85 | 19 39 10 ·66 |
| hur. | 16 | 19 53 16 ·73 | 20 54 26 ·1 | 16 16 ·7 | 10 9 ·51 | 19 43 7 ·22 |
| id. | 17 | 19 57 33 ·23 | 20 42 42 ·2 | 16 16 ·6 | 10 29 ·46 | 19 47 3 ·77 |
| t. | 18 | 20 1 48 ·98 | 20 30 34 ·9 | 16 16 ·5 | 10 48 ·66 | 19 51 0 ·33 |
| n. | 19 | 20 6 4 ·00 | 20 18 4 ·3 | 16 16 ·4 | 11 7 ·11 | 19 54 56 ·88 |
| on. | 20 | 20 10 18 ·25 | 20 5 11 ·0 | 16 16 ·4 | 11 24 ·81 | 19 58 53 ·44 |
| es. | 21 | 20 14 31 ·74 | 19 51 55 ·2 | 16 16 ·3 | 11 41 ·74 | 20 2 50 ·00 |
| ed. | 22 | 20 18 44 ·44 | 19 38 17 ·2 | 16 16 ·2 | 11 57 ·89 | 20 6 46 ·55 |
| hur. | 23 | 20 22 56 ·37 | 19 24 17 ·3 | 16 16 ·0 | 12 13 ·26 | 20 10 43 ·11 |
| id. | 24 | 20 27 7 ·51 | 19 9 56 ·1 | 16 15 ·9 | 12 27 ·84 | 20 14 39 ·67 |
| t. | 25 | 20 31 17 ·85 | 18 55 13 ·7 | 16 15 ·8 | 12 41 ·63 | 20 18 36 ·22 |
| n. | 26 | 20 35 27 ·40 | 18 40 10 ·6 | 16 15 ·7 | 12 54 ·63 | 20 22 32 ·78 |
| on. | 27 | 20 39 36 ·16 | 18 24 47 ·1 | 16 15 ·5 | 13 6 ·83 | 20 26 29 ·33 |
| es. | 28 | 20 43 44 ·11 | 18 9 3 ·6 | 16 15 ·4 | 13 18 ·22 | 20 30 25 ·89 |
| ed. | 29 | 20 47 51 ·26 | 17 53 0 ·4 | 16 15 ·3 | 13 28 ·82 | 20 34 22 ·44 |
| hur. | 30 | 20 51 57 ·62 | 17 36 38 ·1 | 16 15 ·1 | 13 38 ·62 | 20 38 19 ·00 |
| id. | 31 | 20 56 3 ·16 | 17 19 56 ·9 | 16 15 ·0 | 13 47 ·61 | 20 42 15 ·55 |
| t. | 32 | 21 0 7 ·91 | S. 17 2 57 ·3 | 16 14 ·8 | 13 55 ·80 | 20 46 12 ·11 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 281 1 1·5 | S. 0·56 | 9·9926525 | 15 43·9 | 15 50·4 | 57 43·7 | 58 7·6 |
| 2 | 282 2 11·8 | 0·46 | 9·9926580 | 15 57·0 | 16 3·7 | 58 32·0 | 58 56·4 |
| 3 | 283 3 22·3 | 0·35 | 9·9926656 | 16 10·1 | 16 16·3 | 59 20·0 | 59 42·7 |
| 4 | 284 4 32·9 | 0·23 | 9·9926751 | 16 22·0 | 16 27·2 | 60 3·8 | 60 22·7 |
| 5 | 285 5 43·5 | S. 0·09 | 9·9926865 | 16 31·6 | 16 35·0 | 60 38·8 | 60 51·3 |
| 6 | 286 6 54·2 | N. 0·04 | 9·9926996 | 16 37·3 | 16 38·4 | 60 59·8 | 61 4·0 |
| 7 | 287 8 4·7 | 0·16 | 9·9927145 | 16 38·3 | 16 36·9 | 61 3·6 | 60 58·4 |
| 8 | 288 9 15·1 | 0·26 | 9·9927311 | 16 34·2 | 16 30·5 | 60 48·6 | 60 34·7 |
| 9 | 289 10 25·2 | 0·34 | 9·9927492 | 16 25·5 | 16 19·6 | 60 16·5 | 59 54·9 |
| 10 | 290 11 34·9 | 0·40 | 9·9927690 | 16 13·0 | 16 5·7 | 59 30·5 | 59 4·0 |
| 11 | 291 12 44·1 | 0·42 | 9·9927905 | 15 58·1 | 15 50·2 | 58 35·8 | 58 7·0 |
| 12 | 292 13 52·6 | 0·42 | 9·9928137 | 15 42·3 | 15 34·6 | 57 38·1 | 57 9·7 |
| 13 | 293 15 0·6 | 0·39 | 9·9928388 | 15 27·1 | 15 20·1 | 56 42·1 | 56 16·5 |
| 14 | 294 16 7·8 | 0·34 | 9·9928657 | 15 13·6 | 15 7·5 | 55 52·5 | 55 30·4 |
| 15 | 295 17 14·1 | 0·25 | 9·9928947 | 15 2·2 | 14 57·5 | 55 10·8 | 54 53·5 |
| 16 | 296 18 19·7 | 0·14 | 9·9929258 | 14 53·5 | 14 50·1 | 54 38·8 | 54 26·6 |
| 17 | 297 19 24·4 | N. 0·01 | 9·9929591 | 14 47·6 | 14 45·5 | 54 17·1 | 54 9·7 |
| 18 | 298 20 28·1 | S. 0·12 | 9·9929949 | 14 44·2 | 14 43·4 | 54 4·6 | 54 1·8 |
| 19 | 299 21 31·0 | 0·26 | 9·9930331 | 14 43·2 | 14 43·5 | 54 1·2 | 54 2·3 |
| 20 | 300 22 32·9 | 0·38 | 9·9930738 | 14 44·4 | 14 45·6 | 54 5·5 | 54 10·0 |
| 21 | 301 23 34·0 | 0·50 | 9·9931172 | 14 47·3 | 14 49·3 | 54 16·1 | 54 23·5 |
| 22 | 302 24 34·1 | 0·60 | 9·9931633 | 14 51·6 | 14 54·3 | 54 32·1 | 54 41·8 |
| 23 | 303 25 33·5 | 0·68 | 9·9932122 | 14 57·2 | 15 0·3 | 54 52·4 | 55 3·9 |
| 24 | 304 26 32·0 | 0·73 | 9·9932637 | 15 3·7 | 15 7·2 | 55 16·2 | 55 29·1 |
| 25 | 305 27 29·7 | 0·74 | 9·9933178 | 15 10·9 | 15 14·7 | 55 42·7 | 55 56·7 |
| 26 | 306 28 26·6 | 0·74 | 9·9933744 | 15 18·7 | 15 22·8 | 56 11·3 | 56 26·4 |
| 27 | 307 29 22·8 | 0·70 | 9·9934335 | 15 27·0 | 15 31·4 | 56 41·9 | 56 57·9 |
| 28 | 308 30 18·2 | 0·62 | 9·9934951 | 15 35·9 | 15 40·4 | 57 14·4 | 57 31·1 |
| 29 | 309 31 12·9 | 0·53 | 9·9935589 | 15 45·0 | 15 49·7 | 57 48·0 | 58 5·2 |
| 30 | 310 32 6·9 | 0·42 | 9·9936247 | 15 54·5 | 15 59·2 | 58 22·6 | 58 39·9 |
| 31 | 311 33 0·0 | 0·29 | 9·9936925 | 16 3·8 | 16 8·2 | 58 56·8 | 59 13·0 |
| 32 | 312 33 52·3 | S. 0·16 | 9·9937622 | 16 12·3 | 16 16·2 | 59 28·2 | 59 42·3 |

## MEAN TIME.

### THE MOON'S

| Day of the Week. | Day of the Month. | Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Wed. | 1 | 189 16 48 ·0 | 196 2 29 ·6 | S. 4 15 38 ·6 | S. 3 52 47 ·7 | 22 ·7 | 18 19 ·9 |
| Thur. | 2 | 202 53 28 ·8 | 209 49 55 ·7 | 3 26 19 ·9 | 2 56 30 ·1 | 23 ·7 | 19 12 ·4 |
| Frid. | 3 | 216 51 53 ·6 | 223 59 21 ·2 | 2 23 37 ·7 | 1 48 7 ·1 | 24 ·7 | 20 8 ·9 |
| Sat. | 4 | 231 12 9 ·2 | 238 29 59 ·1 | S. 1 10 27 ·8 | S. 0 31 15 ·0 | 25 ·7 | 21 9 ·2 |
| Sun. | 5 | 245 52 23 ·7 | 253 18 44 ·8 | N. 0 8 51 ·9 | N. 0 49 8 ·6 | 26 ·7 | 22 12 ·2 |
| Mon. | 6 | 260 48 14 ·8 | 268 19 56 ·4 | 1 28 48 ·8 | 2 7 5 ·2 | 27 ·7 | 23 15 ·6 |
| Tues. | 7 | 275 52 45 ·1 | 283 25 30 ·1 | 2 43 10 ·7 | 3 16 21 ·5 | 28 ·7 | ó |
| Wed. | 8 | 290 56 58 ·5 | 298 25 57 ·1 | 3 45 59 ·1 | 4 11 31 ·4 | 0 ·2 | 0 17 ·3 |
| Thur. | 9 | 305 51 16 ·8 | 313 11 55 ·0 | 4 32 33 ·6 | 4 48 50 ·4 | 1 ·2 | 1 15 ·6 |
| Frid. | 10 | 320 26 57 ·9 | 327 35 42 ·9 | 5 0 13 ·6 | 5 6 43 ·8 | 2 ·2 | 2 10 ·1 |
| Sat. | 11 | 334 37 39 ·0 | 341 32 27 ·3 | 5 8 27 ·4 | 5 5 37 ·3 | 3 ·2 | 3 1 ·0 |
| Sun. | 12 | 348 20 0 ·5 | 355 0 22 ·1 | 4 58 29 ·3 | 4 47 23 ·6 | 4 ·2 | 3 49 ·3 |
| Mon. | 13 | 1 33 45 ·3 | 8 0 30 ·7 | 4 32 40 ·3 | 4 14 42 ·5 | 5 ·2 | 4 35 ·7 |
| Tues. | 14 | 14 21 5 ·9 | 20 36 2 ·8 | 3 53 52 ·1 | 3 30 30 ·7 | 6 ·2 | 5 21 ·3 |
| Wed. | 15 | 26 45 58 ·1 | 32 51 30 ·5 | 3 4 59 ·8 | 2 37 40 ·0 | 7 ·2 | 6 6 ·8 |
| Thur. | 16 | 38 53 18 ·9 | 44 52 4 ·2 | 2 8 51 ·0 | 1 38 51 ·6 | 8 ·2 | 6 52 ·9 |
| Frid. | 17 | 50 48 26 ·8 | 56 43 5 ·4 | 1 8 0 ·4 | N. 0 36 35 ·7 | 9 ·2 | 7 39 ·7 |
| Sat. | 18 | 62 36 37 ·7 | 68 29 39 ·9 | N. 0 4 54 ·7 | S. 0 26 44 ·8 | 10 ·2 | 8 27 ·5 |
| Sun. | 19 | 74 22 44 ·8 | 80 16 22 ·8 | S. 0 58 4 ·7 | 1 28 47 ·9 | 11 ·2 | 9 15 ·9 |
| Mon. | 20 | 86 11 2 ·5 | 92 7 8 ·0 | 1 58 36 ·2 | 2 27 11 ·6 | 12 ·2 | 10 4 ·4 |
| Tues. | 21 | 98 5 1 ·2 | 104 4 59 ·6 | 2 54 16 ·0 | 3 19 31 ·2 | 13 ·2 | 10 52 ·7 |
| Wed. | 22 | 110 7 18 ·0 | 116 12 8 ·1 | 3 42 39 ·5 | 4 3 23 ·2 | 14 ·2 | 11 40 ·3 |
| Thur. | 23 | 122 19 37 ·9 | 128 29 53 ·8 | 4 21 26 ·2 | 4 36 32 ·5 | 15 ·2 | 12 26 ·9 |
| Frid. | 24 | 134 42 59 ·1 | 140 58 55 ·3 | 4 48 27 ·9 | 4 56 59 ·9 | 16 ·2 | 13 12 ·7 |
| Sat. | 25 | 147 17 43 ·4 | 153 39 23 ·4 | 5 1 57 ·7 | 5 3 13 ·4 | 17 ·2 | 13 57 ·9 |
| Sun. | 26 | 160 3 54 ·9 | 166 31 18 ·3 | 5 0 41 ·1 | 4 54 17 ·6 | 18 ·2 | 14 43 ·3 |
| Mon. | 27 | 173 1 35 ·2 | 179 34 48 ·2 | 4 44 2 ·8 | 4 29 59 ·4 | 19 ·2 | 15 29 ·4 |
| Tues. | 28 | 186 11 1 ·3 | 192 50 19 ·8 | 4 12 13 ·2 | 3 50 53 ·2 | 20 ·2 | 16 17 ·2 |
| Wed. | 29 | 199 32 50 ·4 | 206 18 40 ·5 | 3 26 11 ·7 | 2 58 23 ·9 | 21 ·2 | 17 7 ·4 |
| Thur. | 30 | 213 7 58 ·6 | 220 0 51 ·6 | 2 27 48 ·7 | 1 54 48 ·3 | 22 ·2 | 18 0 ·8 |
| Frid. | 31 | 226 57 25 ·7 | 233 57 45 ·5 | 1 19 48 ·4 | S. 0 43 17 ·7 | 23 ·2 | 18 57 ·5 |
| Sat. | 32 | 241 1 50 ·9 | 248 9 37 ·3 | S. 0 5 48 ·1 | N. 0 32 4 ·6 | 24 ·2 | 19 56 ·9 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 27 20 ·13 | S. 7 35 42 ·3 | 116 ·60 |
| 1 | 12 29 27 ·17 | 7 47 21 ·9 | 116 ·33 |
| 2 | 12 31 34 ·47 | 7 58 59 ·9 | 116 ·05 |
| 3 | 12 33 42 ·04 | 8 10 36 ·2 | 115 ·78 |
| 4 | 12 35 49 ·88 | 8 22 10 ·9 | 115 ·47 |
| 5 | 12 37 57 ·99 | 8 33 43 ·7 | 115 ·17 |
| 6 | 12 40 6 ·37 | 8 45 14 ·7 | 114 ·85 |
| 7 | 12 42 15 ·04 | 8 56 43 ·8 | 114 ·52 |
| 8 | 12 44 23 ·99 | 9 8 10 ·9 | 114 ·18 |
| 9 | 12 46 33 ·22 | 9 19 36 ·0 | 113 ·82 |
| 10 | 12 48 42 ·75 | 9 30 58 ·9 | 113 ·45 |
| 11 | 12 50 52 ·57 | 9 42 19 ·6 | 113 ·07 |
| 12 | 12 53 2 ·68 | 9 53 38 ·0 | 112 ·68 |
| 13 | 12 55 13 ·10 | 10 4 54 ·1 | 112 ·28 |
| 14 | 12 57 23 ·82 | 10 16 7 ·8 | 111 ·85 |
| 15 | 12 59 34 ·85 | 10 27 18 ·9 | 111 ·43 |
| 16 | 13 1 46 ·19 | 10 38 27 ·5 | 111 ·00 |
| 17 | 13 3 57 ·84 | 10 49 33 ·5 | 110 ·55 |
| 18 | 13 6 9 ·81 | 11 0 36 ·8 | 110 ·07 |
| 19 | 13 8 22 ·10 | 11 11 37 ·2 | 109 ·60 |
| 20 | 13 10 34 ·72 | 11 22 34 ·8 | 109 ·12 |
| 21 | 13 12 47 ·65 | 11 33 29 ·5 | 108 ·58 |
| 22 | 13 15 0 ·92 | 11 44 21 ·0 | 108 ·08 |
| 23 | 13 17 14 ·52 | S. 11 55 9 ·5 | 107 ·55 |
| | *THURSDAY* 2. | | |
| 0 | 13 19 28 ·45 | S. 12 5 54 ·8 | 107 ·02 |
| 1 | 13 21 42 ·73 | 12 16 36 ·9 | 106 ·47 |
| 2 | 13 23 57 ·34 | 12 27 15 ·7 | 105 ·88 |
| 3 | 13 26 12 ·30 | 12 37 51 ·0 | 105 ·32 |
| 4 | 13 28 27 ·61 | 12 48 22 ·9 | 104 ·70 |
| 5 | 13 30 43 ·27 | 12 58 51 ·1 | 104 ·10 |
| 6 | 13 32 59 ·28 | 13 9 15 ·7 | 103 ·48 |
| 7 | 13 35 15 ·64 | 13 19 36 ·6 | 102 ·83 |
| 8 | 13 37 32 ·35 | 13 29 53 ·6 | 102 ·20 |
| 9 | 13 39 49 ·42 | 13 40 6 ·8 | 101 ·52 |
| 10 | 13 42 6 ·85 | 13 50 15 ·9 | 100 ·85 |
| 11 | 13 44 24 ·64 | 14 0 21 ·0 | 100 ·15 |
| 12 | 13 46 42 ·80 | 14 10 21 ·9 | 99 ·45 |
| 13 | 13 49 1 ·32 | 14 20 18 ·6 | 98 ·72 |
| 14 | 13 51 20 ·21 | 14 30 10 ·9 | 97 ·98 |
| 15 | 13 53 39 ·47 | 14 39 58 ·8 | 97 ·23 |
| 16 | 13 55 59 ·10 | 14 49 42 ·2 | 96 ·47 |
| 17 | 13 58 19 ·10 | 14 59 21 ·0 | 95 ·70 |
| 18 | 14 0 39 ·48 | 15 8 55 ·2 | 94 ·88 |
| 19 | 14 3 0 ·22 | 15 18 24 ·5 | 94 ·08 |
| 20 | 14 5 21 ·35 | 15 27 49 ·0 | 93 ·27 |
| 21 | 14 7 42 ·85 | 15 37 8 ·6 | 92 ·43 |
| 22 | 14 10 4 ·73 | 15 46 23 ·2 | 91 ·57 |
| 23 | 14 12 26 ·98 | 15 55 32 ·6 | 90 ·72 |
| 24 | 14 14 49 ·62 | S. 16 4 36 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 14 49 ·62 | S. 16 4 36 ·9 | 89 ·83 |
| 1 | 14 17 12 ·64 | 16 13 35 ·9 | 88 ·92 |
| 2 | 14 19 36 ·04 | 16 22 29 ·4 | 88 ·02 |
| 3 | 14 21 59 ·82 | 16 31 17 ·5 | 87 ·10 |
| 4 | 14 24 23 ·98 | 16 40 0 ·1 | 86 ·15 |
| 5 | 14 26 48 ·52 | 16 48 37 ·0 | 85 ·18 |
| 6 | 14 29 13 ·44 | 16 57 8 ·1 | 84 ·22 |
| 7 | 14 31 38 ·75 | 17 5 33 ·4 | 83 ·23 |
| 8 | 14 34 4 ·43 | 17 13 52 ·8 | 82 ·23 |
| 9 | 14 36 30 ·50 | 17 22 6 ·2 | 81 ·22 |
| 10 | 14 38 56 ·94 | 17 30 13 ·5 | 80 ·18 |
| 11 | 14 41 23 ·77 | 17 38 14 ·6 | 79 ·13 |
| 12 | 14 43 50 ·97 | 17 46 9 ·5 | 78 ·08 |
| 13 | 14 46 18 ·55 | 17 53 58 ·0 | 77 ·00 |
| 14 | 14 48 46 ·51 | 18 1 40 ·0 | 75 ·92 |
| 15 | 14 51 14 ·84 | 18 9 15 ·5 | 74 ·82 |
| 16 | 14 53 43 ·54 | 18 16 44 ·4 | 73 ·70 |
| 17 | 14 56 12 ·62 | 18 24 6 ·6 | 72 ·55 |
| 18 | 14 58 42 ·06 | 18 31 21 ·9 | 71 ·40 |
| 19 | 15 1 11 ·87 | 18 38 30 ·3 | 70 ·25 |
| 20 | 15 3 42 ·05 | 18 45 31 ·8 | 69 ·07 |
| 21 | 15 6 12 ·59 | 18 52 26 ·2 | 67 ·88 |
| 22 | 15 8 43 ·48 | 18 59 13 ·5 | 66 ·67 |
| 23 | 15 11 14 ·73 | S. 19 5 53 ·5 | 65 ·45 |
| | *SATURDAY* 4. | | |
| 0 | 15 13 46 ·34 | S. 19 12 26 ·2 | 64 ·22 |
| 1 | 15 16 18 ·30 | 19 18 51 ·5 | 62 ·97 |
| 2 | 15 18 50 ·61 | 19 25 9 ·3 | 61 ·70 |
| 3 | 15 21 23 ·26 | 19 31 19 ·5 | 60 ·43 |
| 4 | 15 23 56 ·26 | 19 37 22 ·1 | 59 ·13 |
| 5 | 15 26 29 ·59 | 19 43 16 ·9 | 57 ·83 |
| 6 | 15 29 3 ·26 | 19 49 3 ·9 | 56 ·53 |
| 7 | 15 31 37 ·26 | 19 54 43 ·1 | 55 ·18 |
| 8 | 15 34 11 ·58 | 20 0 14 ·2 | 53 ·85 |
| 9 | 15 36 46 ·23 | 20 5 37 ·3 | 52 ·50 |
| 10 | 15 39 21 ·19 | 20 10 52 ·3 | 51 ·13 |
| 11 | 15 41 56 ·47 | 20 15 59 ·1 | 49 ·75 |
| 12 | 15 44 32 ·05 | 20 20 57 ·6 | 48 ·37 |
| 13 | 15 47 7 ·94 | 20 25 47 ·8 | 46 ·97 |
| 14 | 15 49 44 ·12 | 20 30 29 ·6 | 45 ·53 |
| 15 | 15 52 20 ·60 | 20 35 2 ·8 | 44 ·12 |
| 16 | 15 54 57 ·36 | 20 39 27 ·5 | 42 ·68 |
| 17 | 15 57 34 ·40 | 20 43 43 ·6 | 41 ·23 |
| 18 | 16 0 11 ·72 | 20 47 51 ·0 | 39 ·77 |
| 19 | 16 2 49 ·31 | 20 51 49 ·6 | 38 ·28 |
| 20 | 16 5 27 ·16 | 20 55 39 ·3 | 36 ·82 |
| 21 | 16 8 5 ·27 | 20 59 20 ·2 | 35 ·32 |
| 22 | 16 10 43 ·62 | 21 2 52 ·1 | 33 ·83 |
| 23 | 16 13 22 ·22 | 21 6 15 ·1 | 32 ·30 |
| 24 | 16 16 1 ·06 | S. 21 9 28 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SUNDAY* 5. | | | | *TUESDAY* 7. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 16 1 ·06 | S. 21 9 28 ·9 | 30 ·78 | 0 | 18 25 6 ·16 | S. 20 36 37 ·8 | 46 ·13 |
| 18 40 ·13 | 21 12 33 ·6 | 29 ·23 | 1 | 18 27 46 ·52 | 20 32 1 ·0 | 47 ·65 |
| 21 19 ·42 | 21 15 29 ·0 | 27 ·72 | 2 | 18 30 26 ·69 | 20 27 15 ·1 | 49 ·15 |
| 23 58 ·93 | 21 18 15 ·3 | 26 ·15 | 3 | 18 33 6 ·68 | 20 22 20 ·2 | 50 ·68 |
| 26 38 ·65 | 21 20 52 ·2 | 24 ·62 | 4 | 18 35 46 ·47 | 20 17 16 ·1 | 52 ·17 |
| 29 18 ·56 | 21 23 19 ·9 | 23 ·03 | 5 | 18 38 26 ·06 | 20 12 3 ·1 | 53 ·65 |
| 31 58 ·67 | 21 25 38 ·1 | 21 ·48 | 6 | 18 41 5 ·44 | 20 6 41 ·2 | 55 ·12 |
| 34 38 ·97 | 21 27 47 ·0 | 19 ·88 | 7 | 18 43 44 ·60 | 20 1 10 ·5 | 56 ·60 |
| 37 19 ·44 | 21 29 46 ·3 | 18 ·32 | 8 | 18 46 23 ·53 | 19 55 30 ·9 | 58 ·03 |
| 40 0 ·08 | 21 31 36 ·2 | 16 ·72 | 9 | 18 49 2 ·24 | 19 49 42 ·7 | 59 ·48 |
| 42 40 ·88 | 21 33 16 ·5 | 15 ·13 | 10 | 18 51 40 ·70 | 19 43 45 ·8 | 60 ·92 |
| 45 21 ·84 | 21 34 47 ·3 | 13 ·53 | 11 | 18 54 18 ·93 | 19 37 40 ·3 | 62 ·32 |
| 48 2 ·94 | 21 36 8 ·5 | 11 ·93 | 12 | 18 56 56 ·90 | 19 31 26 ·4 | 63 ·73 |
| 50 44 ·18 | 21 37 20 ·1 | 10 ·32 | 13 | 18 59 34 ·62 | 19 25 4 ·0 | 65 ·12 |
| 53 25 ·55 | 21 38 22 ·0 | 8 ·70 | 14 | 19 2 12 ·07 | 19 18 33 ·3 | 66 ·48 |
| 56 7 ·05 | 21 39 14 ·2 | 7 ·07 | 15 | 19 4 49 ·26 | 19 11 54 ·4 | 67 ·87 |
| 58 48 ·65 | 21 39 56 ·6 | 5 ·47 | 16 | 19 7 26 ·18 | 19 5 7 ·2 | 69 ·20 |
| 1 30 ·35 | 21 40 29 ·4 | 3 ·83 | 17 | 19 10 2 ·81 | 18 58 12 ·0 | 70 ·55 |
| 4 12 ·15 | 21 40 52 ·4 | 2 ·20 | 18 | 19 12 39 ·17 | 18 51 8 ·7 | 71 ·87 |
| 6 54 ·04 | 21 41 5 ·6 | 0 ·57 | 19 | 19 15 15 ·23 | 18 43 57 ·5 | 73 ·17 |
| 9 36 ·00 | 21 41 9 ·0 | 1 ·07 | 20 | 19 17 51 ·00 | 18 36 38 ·5 | 74 ·4[illegible] |
| 12 18 ·03 | 21 41 2 ·6 | 2 ·72 | 21 | 19 20 26 ·47 | 18 29 11 ·7 | 75[illegible] |
| 15 0 ·12 | 21 40 46 ·3 | 4 ·33 | 22 | 19 23 1 ·64 | 18 21 37 ·2 | 77[illegible] |
| 17 42 ·26 | S. 21 40 20 ·3 | 5 ·98 | 23 | 19 25 36 ·50 | S. 18 13 55 ·2 | 78 ·[illegible] |
| *MONDAY* 6. | | | | *WEDNESDAY* 8. | | |
| 20 24 ·44 | S. 21 39 44 ·4 | 7 ·63 | 0 | 19 28 11 ·05 | S. 18 6 5 ·6 | 79 ·48 |
| 23 6 ·66 | 21 38 58 ·6 | 9 ·27 | 1 | 19 30 45 ·28 | 17 58 8 ·7 | 80 ·72 |
| 25 48 ·90 | 21 38 3 ·0 | 10 ·90 | 2 | 19 33 19 ·19 | 17 50 4 ·4 | 81 ·92 |
| 28 31 ·15 | 21 36 57 ·6 | 12 ·55 | 3 | 19 35 52 ·77 | 17 41 52 ·9 | 83 ·08 |
| 31 13 ·41 | 21 35 42 ·3 | 14 ·20 | 4 | 19 38 26 ·03 | 17 33 34 ·4 | 84 ·27 |
| 33 55 ·66 | 21 34 17 ·1 | 15 ·82 | 5 | 19 40 58 ·95 | 17 25 8 ·8 | 85 ·42 |
| 36 37 ·91 | 21 32 42 ·2 | 17 ·47 | 6 | 19 43 31 ·54 | 17 16 36 ·3 | 86 ·57 |
| 39 20 ·13 | 21 30 57 ·4 | 19 ·08 | 7 | 19 46 3 ·80 | 17 7 56 ·9 | 87 ·67 |
| 42 2 ·32 | 21 29 2 ·9 | 20 ·73 | 8 | 19 48 35 ·71 | 16 59 10 ·9 | 88 ·78 |
| 44 44 ·48 | 21 26 58 ·5 | 22 ·35 | 9 | 19 51 7 ·28 | 16 50 18 ·2 | 89 ·87 |
| 47 26 ·58 | 21 24 44 ·4 | 23 ·98 | 10 | 19 53 38 ·50 | 16 41 19 ·0 | 90 ·95 |
| 50 8 ·63 | 21 22 20 ·5 | 25 ·58 | 11 | 19 56 9 ·38 | 16 32 13 ·3 | 92 ·00 |
| 52 50 ·61 | 21 19 47 ·0 | 27 ·22 | 12 | 19 58 39 ·91 | 16 23 1 ·3 | 93 ·03 |
| 55 32 ·52 | 21 17 3 ·7 | 28 ·82 | 13 | 20 1 10 ·08 | 16 13 43 ·1 | 94 ·05 |
| 58 14 ·35 | 21 14 10 ·8 | 30 ·43 | 14 | 20 3 39 ·90 | 16 4 18 ·8 | 95 ·07 |
| 0 56 ·08 | 21 11 8 ·2 | 32 ·02 | 15 | 20 6 9 ·36 | 15 54 48 ·4 | 96 ·03 |
| 3 37 ·72 | 21 7 56 ·1 | 33 ·62 | 16 | 20 8 38 ·47 | 15 45 12 ·2 | 97 ·02 |
| 6 19 ·24 | 21 4 34 ·4 | 35 ·22 | 17 | 20 11 7 ·21 | 15 35 30 ·1 | 97 ·97 |
| 9 0 ·65 | 21 1 3 ·1 | 36 ·78 | 18 | 20 13 35 ·60 | 15 25 42 ·3 | 98 ·90 |
| 11 41 ·93 | 20 57 22 ·4 | 38 ·37 | 19 | 20 16 3 ·62 | 15 15 48 ·9 | 99 ·82 |
| 14 23 ·07 | 20 53 32 ·2 | 39 ·93 | 20 | 20 18 31 ·28 | 15 5 50 ·0 | 100 ·73 |
| 17 4 ·08 | 20 49 32 ·6 | 41 ·50 | 21 | 20 20 58 ·58 | 14 55 45 ·6 | 101 ·60 |
| 19 44 ·93 | 20 45 23 ·6 | 43 ·05 | 22 | 20 23 25 ·51 | 14 45 36 ·0 | 102 ·47 |
| 22 25 ·63 | 20 41 5 ·3 | 44 ·58 | 23 | 20 25 52 ·08 | 14 35 21 ·2 | 103 ·33 |
| 25 6 ·16 | S. 20 36 37 ·8 | | 24 | 20 28 18 ·28 | S. 14 25 1 ·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 20 28 18 ·28 | S. 14 25 1 ·2 | 104 ·17 |
| 1 | 20 30 44 ·12 | 14 14 36 ·2 | 104 ·97 |
| 2 | 20 33 9 ·58 | 14 4 6 ·4 | 105 ·77 |
| 3 | 20 35 34 ·69 | 13 53 31 ·8 | 106 ·55 |
| 4 | 20 37 59 ·43 | 13 42 52 ·5 | 107 ·32 |
| 5 | 20 40 23 ·80 | 13 32 8 ·6 | 108 ·07 |
| 6 | 20 42 47 ·80 | 13 21 20 ·2 | 108 ·80 |
| 7 | 20 45 11 ·44 | 13 10 27 ·4 | 109 ·50 |
| 8 | 20 47 34 ·72 | 12 59 30 ·4 | 110 ·18 |
| 9 | 20 49 57 ·63 | 12 48 29 ·3 | 110 ·88 |
| 10 | 20 52 20 ·18 | 12 37 24 ·0 | 111 ·53 |
| 11 | 20 54 42 ·37 | 12 26 14 ·8 | 112 ·18 |
| 12 | 20 57 4 ·19 | 12 15 1 ·7 | 112 ·80 |
| 13 | 20 59 25 ·66 | 12 3 44 ·9 | 113 ·42 |
| 14 | 21 1 46 ·77 | 11 52 24 ·4 | 114 ·00 |
| 15 | 21 4 7 ·52 | 11 41 0 ·4 | 114 ·58 |
| 16 | 21 6 27 ·91 | 11 29 32 ·9 | 115 ·15 |
| 17 | 21 8 47 ·95 | 11 18 2 ·0 | 115 ·68 |
| 18 | 21 11 7 ·64 | 11 6 27 ·9 | 116 ·22 |
| 19 | 21 13 26 ·98 | 10 54 50 ·6 | 116 ·72 |
| 20 | 21 15 45 ·96 | 10 43 10 ·3 | 117 ·22 |
| 21 | 21 18 4 ·60 | 10 31 27 ·0 | 117 ·70 |
| 22 | 21 20 22 ·90 | 10 19 40 ·8 | 118 ·17 |
| 23 | 21 22 40 ·85 | S. 10 7 51 ·8 | 118 ·62 |
| | *FRIDAY* 10. | | |
| 0 | 21 24 58 ·46 | S. 9 56 0 ·1 | 119 ·05 |
| 1 | 21 27 15 ·73 | 9 44 5 ·8 | 119 ·45 |
| 2 | 21 29 32 ·67 | 9 32 9 ·1 | 119 ·87 |
| 3 | 21 31 49 ·27 | 9 20 9 ·9 | 120 ·23 |
| 4 | 21 34 5 ·54 | 9 8 8 ·5 | 120 ·62 |
| 5 | 21 36 21 ·48 | 8 56 4 ·8 | 120 ·97 |
| 6 | 21 38 37 ·10 | 8 43 59 ·0 | 121 ·32 |
| 7 | 21 40 52 ·39 | 8 31 51 ·1 | 121 ·63 |
| 8 | 21 43 7 ·36 | 8 19 41 ·3 | 121 ·93 |
| 9 | 21 45 22 ·01 | 8 7 29 ·7 | 122 ·23 |
| 10 | 21 47 36 ·35 | 7 55 16 ·3 | 122 ·52 |
| 11 | 21 49 50 ·37 | 7 43 1 ·2 | 122 ·78 |
| 12 | 21 52 4 ·08 | 7 30 44 ·5 | 123 ·03 |
| 13 | 21 54 17 ·49 | 7 18 26 ·3 | 123 ·27 |
| 14 | 21 56 30 ·59 | 7 6 6 ·7 | 123 ·48 |
| 15 | 21 58 43 ·40 | 6 53 45 ·8 | 123 ·68 |
| 16 | 22 0 55 ·91 | 6 41 23 ·7 | 123 ·90 |
| 17 | 22 3 8 ·12 | 6 29 0 ·3 | 124 ·07 |
| 18 | 22 5 20 ·04 | 6 16 35 ·9 | 124 ·23 |
| 19 | 22 7 31 ·67 | 6 4 10 ·5 | 124 ·40 |
| 20 | 22 9 43 ·02 | 5 51 44 ·1 | 124 ·53 |
| 21 | 22 11 54 ·09 | 5 39 16 ·9 | 124 ·67 |
| 22 | 22 14 4 ·88 | 5 26 48 ·9 | 124 ·77 |
| 23 | 22 16 15 ·39 | 5 14 20 ·3 | 124 ·88 |
| 24 | 22 18 25 ·64 | S. 5 1 51 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. for |
|---|---|---|---|
| | *SATURDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 18 25 ·64 | S. 5 1 51 ·0 | 124 |
| 1 | 22 20 35 ·62 | 4 49 21 ·2 | 125 |
| 2 | 22 22 45 ·33 | 4 36 50 ·9 | 125 |
| 3 | 22 24 54 ·78 | 4 24 20 ·2 | 125 |
| 4 | 22 27 3 ·97 | 4 11 49 ·2 | 125 |
| 5 | 22 29 12 ·91 | 3 59 18 ·0 | 125 |
| 6 | 22 31 21 ·60 | 3 46 46 ·6 | 125 |
| 7 | 22 33 30 ·04 | 3 34 15 ·1 | 125 |
| 8 | 22 35 38 ·24 | 3 21 43 ·7 | 125 |
| 9 | 22 37 46 ·20 | 3 9 12 ·2 | 125 |
| 10 | 22 39 53 ·93 | 2 56 40 ·9 | 125 |
| 11 | 22 42 1 ·42 | 2 44 9 ·8 | 125 |
| 12 | 22 44 8 ·68 | 2 31 38 ·9 | 125 |
| 13 | 22 46 15 ·72 | 2 19 8 ·4 | 125 |
| 14 | 22 48 22 ·54 | 2 6 38 ·3 | 124 |
| 15 | 22 50 29 ·14 | 1 54 8 ·6 | 124 |
| 16 | 22 52 35 ·53 | 1 41 39 ·5 | 124 |
| 17 | 22 54 41 ·71 | 1 29 11 ·0 | 124 |
| 18 | 22 56 47 ·68 | 1 16 43 ·1 | 124 |
| 19 | 22 58 53 ·44 | 1 4 15 ·9 | 124 |
| 20 | 23 0 59 ·01 | 0 51 49 ·5 | 124 |
| 21 | 23 3 4 ·38 | 0 39 24 ·0 | 124 |
| 22 | 23 5 9 ·56 | 0 26 59 ·3 | 123 |
| 23 | 23 7 14 ·56 | S. 0 14 35 ·6 | 123 |
| | *SUNDAY* 12. | | |
| 0 | 23 9 19 ·36 | S. 0 2 12 ·9 | 123 |
| 1 | 23 11 23 ·98 | N. 0 10 8 ·7 | 123 |
| 2 | 23 13 28 ·43 | 0 22 29 ·3 | 123 |
| 3 | 23 15 32 ·70 | 0 34 48 ·6 | 123 |
| 4 | 23 17 36 ·81 | 0 47 6 ·7 | 123 |
| 5 | 23 19 40 ·75 | 0 59 23 ·5 | 123 |
| 6 | 23 21 44 ·52 | 1 11 38 ·9 | 123 |
| 7 | 23 23 48 ·14 | 1 23 52 ·9 | 123 |
| 8 | 23 25 51 ·60 | 1 36 5 ·5 | 123 |
| 9 | 23 27 54 ·91 | 1 48 16 ·5 | 123 |
| 10 | 23 29 58 ·07 | 2 0 25 ·9 | 123 |
| 11 | 23 32 1 ·09 | 2 12 33 ·8 | 123 |
| 12 | 23 34 3 ·97 | 2 24 39 ·9 | 123 |
| 13 | 23 36 6 ·71 | 2 36 44 ·3 | 123 |
| 14 | 23 38 9 ·32 | 2 48 46 ·9 | 123 |
| 15 | 23 40 11 ·80 | 3 0 47 ·7 | 11 |
| 16 | 23 42 14 ·16 | 3 12 46 ·6 | 11 |
| 17 | 23 44 16 ·39 | 3 24 43 ·6 | 11 |
| 18 | 23 46 18 ·50 | 3 36 38 ·6 | 11 |
| 19 | 23 48 20 ·50 | 3 48 31 ·6 | 11 |
| 20 | 23 50 22 ·38 | 4 0 22 ·5 | 11 |
| 21 | 23 52 24 ·16 | 4 12 11 ·3 | 11 |
| 22 | 23 54 25 ·83 | 4 23 57 ·9 | 11 |
| 23 | 23 56 27 ·39 | 4 35 42 ·3 | 11 |
| 24 | 23 58 28 ·86 | N. 4 47 24 ·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|
| *MONDAY* 13. | | | | *WEDNESDAY* 15. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 58 28 ·86 | N. 4 47 24 ·5 | 116 ·65 | 0 | 1 34 44 ·79 | N.13 12 1 ·5 | 90 ·80 |
| 0 30 ·23 | 4 59 4 ·4 | 116 ·27 | 1 | 1 36 45 ·13 | 13 21 6 ·3 | 90 ·13 |
| 2 31 ·51 | 5 10 42 ·0 | 115 ·85 | 2 | 1 38 45 ·51 | 13 30 7 ·1 | 89 ·43 |
| 4 32 ·70 | 5 22 17 ·1 | 115 ·47 | 3 | 1 40 45 ·93 | 13 39 3 ·7 | 88 ·77 |
| 6 33 ·81 | 5 33 49 ·9 | 115 ·05 | 4 | 1 42 46 ·40 | 13 47 56 ·3 | 88 ·08 |
| 8 34 ·84 | 5 45 20 ·2 | 114 ·63 | 5 | 1 44 46 ·91 | 13 56 44 ·8 | 87 ·37 |
| 10 35 ·78 | 5 56 48 ·0 | 114 ·20 | 6 | 1 46 47 ·47 | 14 5 29 ·0 | 86 ·68 |
| 12 36 ·65 | 6 8 13 ·2 | 113 ·77 | 7 | 1 48 48 ·08 | 14 14 9 ·1 | 85 ·98 |
| 14 37 ·45 | 6 19 35 ·8 | 113 ·33 | 8 | 1 50 48 ·74 | 14 22 45 ·0 | 85 ·27 |
| 16 38 ·18 | 6 30 55 ·8 | 112 ·88 | 9 | 1 52 49 ·45 | 14 31 16 ·6 | 84 ·57 |
| 18 38 ·84 | 6 42 13 ·1 | 112 ·43 | 10 | 1 54 50 ·22 | 14 39 44 ·0 | 83 ·83 |
| 20 39 ·44 | 6 53 27 ·7 | 111 ·98 | 11 | 1 56 51 ·04 | 14 48 7 ·0 | 83 ·12 |
| 22 39 ·99 | 7 4 39 ·6 | 111 ·52 | 12 | 1 58 51 ·92 | 14 56 25 ·7 | 82 ·38 |
| 24 40 ·48 | 7 15 48 ·7 | 111 ·03 | 13 | 2 0 52 ·86 | 15 4 40 ·0 | 81 ·67 |
| 26 40 ·92 | 7 26 54 ·9 | 110 ·55 | 14 | 2 2 53 ·86 | 15 12 50 ·0 | 80 ·92 |
| 28 41 ·30 | 7 37 58 ·2 | 110 ·08 | 15 | 2 4 54 ·92 | 15 20 55 ·5 | 80 ·18 |
| 30 41 ·64 | 7 48 58 ·7 | 109 ·58 | 16 | 2 6 56 ·05 | 15 28 56 ·6 | 79 ·43 |
| 32 41 ·94 | 7 59 56 ·2 | 109 ·08 | 17 | 2 8 57 ·24 | 15 36 53 ·2 | 78 ·68 |
| 34 42 ·20 | 8 10 50 ·7 | 108 ·57 | 18 | 2 10 58 ·50 | 15 44 45 ·3 | 77 ·93 |
| 36 42 ·42 | 8 21 42 ·1 | 108 ·07 | 19 | 2 12 59 ·83 | 15 52 32 ·9 | 77 ·18 |
| 38 42 ·60 | 8 32 30 ·5 | 107 ·55 | 20 | 2 15 1 ·22 | 16 0 16 ·0 | 76 ·40 |
| 40 42 ·75 | 8 43 15 ·8 | 107 ·03 | 21 | 2 17 2 ·69 | 16 7 54 ·4 | 75 ·63 |
| 42 42 ·87 | 8 53 58 ·0 | 106 ·50 | 22 | 2 19 4 ·23 | 16 15 28 ·2 | 74 ·87 |
| 44 42 ·97 | N. 9 4 37 ·0 | 105 ·97 | 23 | 2 21 5 ·84 | N.16 22 57 ·4 | 74 ·10 |
| *TUESDAY* 14. | | | | *THURSDAY* 16. | | |
| 46 43 ·04 | N. 9 15 12 ·8 | 105 ·42 | 0 | 2 23 7 ·53 | N.16 30 22 ·0 | 73 ·32 |
| 48 43 ·09 | 9 25 45 ·3 | 104 ·88 | 1 | 2 25 9 ·29 | 16 37 41 ·9 | 72 ·52 |
| 50 43 ·13 | 9 36 14 ·6 | 104 ·32 | 2 | 2 27 11 ·13 | 16 44 57 ·0 | 71 ·73 |
| 52 43 ·15 | 9 46 40 ·5 | 103 ·77 | 3 | 2 29 13 ·04 | 16 52 7 ·4 | 70 ·93 |
| 54 43 ·15 | 9 57 3 ·1 | 103 ·20 | 4 | 2 31 15 ·04 | 16 59 13 ·0 | 70 ·15 |
| 56 43 ·15 | 10 7 22 ·3 | 102 ·63 | 5 | 2 33 17 ·11 | 17 6 13 ·9 | 69 ·33 |
| 58 43 ·15 | 10 17 38 ·1 | 102 ·07 | 6 | 2 35 19 ·26 | 17 13 9 ·9 | 68 ·53 |
| 0 43 ·13 | 10 27 50 ·5 | 101 ·47 | 7 | 2 37 21 ·49 | 17 20 1 ·1 | 67 ·72 |
| 2 43 ·12 | 10 37 59 ·3 | 100 ·90 | 8 | 2 39 23 ·81 | 17 26 47 ·4 | 66 ·90 |
| 4 43 ·11 | 10 48 4 ·7 | 100 ·30 | 9 | 2 41 26 ·20 | 17 33 28 ·8 | 66 ·08 |
| 6 43 ·10 | 10 58 6 ·5 | 99 ·70 | 10 | 2 43 28 ·68 | 17 40 5 ·3 | 65 ·27 |
| 8 43 ·10 | 11 8 4 ·7 | 99 ·10 | 11 | 2 45 31 ·24 | 17 46 36 ·9 | 64 ·43 |
| 10 43 ·11 | 11 17 59 ·3 | 98 ·50 | 12 | 2 47 33 ·89 | 17 53 3 ·5 | 63 ·60 |
| 12 43 ·13 | 11 27 50 ·3 | 97 ·88 | 13 | 2 49 36 ·62 | 17 59 25 ·1 | 62 ·77 |
| 14 43 ·16 | 11 37 37 ·6 | 97 ·27 | 14 | 2 51 39 ·44 | 18 5 41 ·7 | 61 ·93 |
| 16 43 ·22 | 11 47 21 ·2 | 96 ·63 | 15 | 2 53 42 ·34 | 18 11 53 ·3 | 61 ·08 |
| 18 43 ·29 | 11 57 1 ·0 | 96 ·02 | 16 | 2 55 45 ·32 | 18 17 59 ·8 | 60 ·23 |
| 20 43 ·38 | 12 6 37 ·1 | 95 ·38 | 17 | 2 57 48 ·39 | 18 24 1 ·2 | 59 ·40 |
| 22 43 ·49 | 12 16 9 ·4 | 94 ·73 | 18 | 2 59 51 ·55 | 18 29 57 ·6 | 58 ·53 |
| 24 43 ·63 | 12 25 37 ·8 | 94 ·10 | 19 | 3 1 54 ·80 | 18 35 48 ·8 | 57 ·67 |
| 26 43 ·80 | 12 35 2 ·4 | 93 ·45 | 20 | 3 3 58 ·13 | 18 41 34 ·8 | 56 ·82 |
| 28 44 ·00 | 12 44 23 ·1 | 92 ·80 | 21 | 3 6 1 ·55 | 18 47 15 ·7 | 55 ·93 |
| 30 44 ·23 | 12 53 39 ·9 | 92 ·13 | 22 | 3 8 5 ·06 | 18 52 51 ·3 | 55 ·08 |
| 32 44 ·49 | 13 2 52 ·7 | 91 ·47 | 23 | 3 10 8 ·65 | 18 58 21 ·8 | 54 ·20 |
| 34 44 ·79 | N.13 12 1 ·5 | | 24 | 3 12 12 ·33 | N.19 3 47 ·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 12 12·33 | N.19 3 47·0 | 53·33 |
| 1 | 3 14 16·10 | 19 9 7·0 | 52·43 |
| 2 | 3 16 19·95 | 19 14 21·6 | 51·57 |
| 3 | 3 18 23·89 | 19 19 31·0 | 50·67 |
| 4 | 3 20 27·92 | 19 24 35·0 | 49·78 |
| 5 | 3 22 32·04 | 19 29 33·7 | 48·88 |
| 6 | 3 24 36·24 | 19 34 27·0 | 47·98 |
| 7 | 3 26 40·52 | 19 39 14·9 | 47·08 |
| 8 | 3 28 44·90 | 19 43 57·4 | 46·17 |
| 9 | 3 30 49·35 | 19 48 34·4 | 45·27 |
| 10 | 3 32 53·90 | 19 53 6·0 | 44·37 |
| 11 | 3 34 58·52 | 19 57 32·2 | 43·43 |
| 12 | 3 37 3·23 | 20 1 52·8 | 42·52 |
| 13 | 3 39 8·02 | 20 6 7·9 | 41·60 |
| 14 | 3 41 12·90 | 20 10 17·5 | 40·67 |
| 15 | 3 43 17·86 | 20 14 21·5 | 39·73 |
| 16 | 3 45 22·89 | 20 18 19·9 | 38·82 |
| 17 | 3 47 28·01 | 20 22 12·8 | 37·87 |
| 18 | 3 49 33·21 | 20 26 0·0 | 36·93 |
| 19 | 3 51 38·49 | 20 29 41·6 | 36·00 |
| 20 | 3 53 43·85 | 20 33 17·6 | 35·05 |
| 21 | 3 55 49·28 | 20 36 47·9 | 34·10 |
| 22 | 3 57 54·79 | 20 40 12·5 | 33·17 |
| 23 | 4 0 0·37 | N.20 43 31·5 | 32·20 |
| | *SATURDAY* 18. | | |
| 0 | 4 2 6·03 | N.20 46 44·7 | 31·25 |
| 1 | 4 4 11·77 | 20 49 52·2 | 30·30 |
| 2 | 4 6 17·57 | 20 52 54·0 | 29·33 |
| 3 | 4 8 23·45 | 20 55 50·0 | 28·37 |
| 4 | 4 10 29·40 | 20 58 40·2 | 27·40 |
| 5 | 4 12 35·41 | 21 1 24·6 | 26·45 |
| 6 | 4 14 41·49 | 21 4 3·3 | 25·47 |
| 7 | 4 16 47·64 | 21 6 36·1 | 24·52 |
| 8 | 4 18 53·86 | 21 9 3·2 | 23·52 |
| 9 | 4 21 0·13 | 21 11 24·3 | 22·57 |
| 10 | 4 23 6·47 | 21 13 39·7 | 21·57 |
| 11 | 4 25 12·87 | 21 15 49·1 | 20·60 |
| 12 | 4 27 19·33 | 21 17 52·7 | 19·62 |
| 13 | 4 29 25·85 | 21 19 50·4 | 18·63 |
| 14 | 4 31 32·42 | 21 21 42·2 | 17·65 |
| 15 | 4 33 39·04 | 21 23 28·1 | 16·67 |
| 16 | 4 35 45·72 | 21 25 8·1 | 15·68 |
| 17 | 4 37 52·45 | 21 26 42·2 | 14·68 |
| 18 | 4 39 59·23 | 21 28 10·3 | 13·68 |
| 19 | 4 42 6·05 | 21 29 32·4 | 12·70 |
| 20 | 4 44 12·92 | 21 30 48·6 | 11·70 |
| 21 | 4 46 19·84 | 21 31 58·8 | 10·72 |
| 22 | 4 48 26·80 | 21 33 3·1 | 9·70 |
| 23 | 4 50 33·80 | 21 34 1·3 | 8·72 |
| 24 | 4 52 40·84 | N.21 34 53·6 | |

| Hour. | Right Ascension. | Declination. | Diff. De for 10m |
|---|---|---|---|
| | *SUNDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 52 40·84 | N.21 34 53·6 | 7·70 |
| 1 | 4 54 47·92 | 21 35 39·8 | 6·72 |
| 2 | 4 56 55·03 | 21 36 20·1 | 5·70 |
| 3 | 4 59 2·17 | 21 36 54·3 | 4·70 |
| 4 | 5 1 9·35 | 21 37 22·5 | 3·68 |
| 5 | 5 3 16·56 | 21 37 44·6 | 2·70 |
| 6 | 5 5 23·80 | 21 38 0·8 | 1·68 |
| 7 | 5 7 31·06 | 21 38 10·9 | 0·68 |
| 8 | 5 9 38·34 | 21 38 15·0 | 0·33 |
| 9 | 5 11 45·65 | 21 38 13·0 | 1·33 |
| 10 | 5 13 52·98 | 21 38 5·0 | 2·35 |
| 11 | 5 16 0·33 | 21 37 50·9 | 3·35 |
| 12 | 5 18 7·69 | 21 37 30·8 | 4·35 |
| 13 | 5 20 15·07 | 21 37 4·7 | 5·37 |
| 14 | 5 22 22·46 | 21 36 32·5 | 6·38 |
| 15 | 5 24 29·87 | 21 35 54·2 | 7·38 |
| 16 | 5 26 37·28 | 21 35 9·9 | 8·38 |
| 17 | 5 28 44·70 | 21 34 19·6 | 9·40 |
| 18 | 5 30 52·12 | 21 33 23·2 | 10·40 |
| 19 | 5 32 59·55 | 21 32 20·8 | 11·4[illegible] |
| 20 | 5 35 6·98 | 21 31 12·3 | 12·4[illegible] |
| 21 | 5 37 14·40 | 21 29 57·8 | 13·[illegible] |
| 22 | 5 39 21·82 | 21 28 37·2 | 14·[illegible] |
| 23 | 5 41 29·23 | N.21 27 10·6 | 15·[illegible] |
| | *MONDAY* 20. | | |
| 0 | 5 43 36·64 | N.21 25 38·0 | 16·[illegible] |
| 1 | 5 45 44·04 | 21 23 59·3 | 17·[illegible] |
| 2 | 5 47 51·42 | 21 22 14·7 | 18·[illegible] |
| 3 | 5 49 58·80 | 21 20 24·0 | 19·[illegible] |
| 4 | 5 52 6·15 | 21 18 27·3 | 20·[illegible] |
| 5 | 5 54 13·49 | 21 16 24·5 | 21·[illegible] |
| 6 | 5 56 20·81 | 21 14 15·8 | 22·[illegible] |
| 7 | 5 58 28·11 | 21 12 1·1 | 23·[illegible] |
| 8 | 6 0 35·38 | 21 9 40·4 | 24·[illegible] |
| 9 | 6 2 42·63 | 21 7 13·8 | 25·[illegible] |
| 10 | 6 4 49·85 | 21 4 41·1 | 26·[illegible] |
| 11 | 6 6 57·03 | 21 2 2·5 | 27·[illegible] |
| 12 | 6 9 4·19 | 20 59 18·0 | 28·[illegible] |
| 13 | 6 11 11·32 | 20 56 27·5 | 29·[illegible] |
| 14 | 6 13 18·41 | 20 53 31·1 | 30·[illegible] |
| 15 | 6 15 25·46 | 20 50 28·8 | 31·[illegible] |
| 16 | 6 17 32·48 | 20 47 20·6 | 32·[illegible] |
| 17 | 6 19 39·45 | 20 44 6·5 | 33·[illegible] |
| 18 | 6 21 46·39 | 20 40 46·5 | 34·[illegible] |
| 19 | 6 23 53·27 | 20 37 20·7 | 35·[illegible] |
| 20 | 6 26 0·12 | 20 33 49·0 | 36·[illegible] |
| 21 | 6 28 6·91 | 20 30 11·5 | 37·[illegible] |
| 22 | 6 30 13·66 | 20 26 28·1 | 38·[illegible] |
| 23 | 6 32 20·35 | 20 22 39·0 | 39·[illegible] |
| 24 | 6 34 26·99 | N.20 18 44·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *TUESDAY* 21. | | |
| m s | ° ′ ″ | ″ |
| 34 26·99 | N.20 18 44·1 | 40·12 |
| 36 33·58 | 20 14 43·4 | 41·07 |
| 38 40·11 | 20 10 37·0 | 42·03 |
| 40 46·58 | 20 6 24·8 | 42·98 |
| 42 52·99 | 20 2 6·9 | 43·93 |
| 44 59·35 | 19 57 43·3 | 44·87 |
| 47 5·64 | 19 53 14·1 | 45·83 |
| 49 11·86 | 19 48 39·1 | 46·75 |
| 51 18·02 | 19 43 58·6 | 47·70 |
| 53 24·12 | 19 39 12·4 | 48·63 |
| 55 30·14 | 19 34 20·6 | 49·57 |
| 57 36·10 | 19 29 23·2 | 50·48 |
| 59 41·98 | 19 24 20·3 | 51·42 |
| 1 47·79 | 19 19 11·8 | 52·32 |
| 3 53·53 | 19 13 57·9 | 53·25 |
| 5 59·20 | 19 8 38·4 | 54·15 |
| 8 4·79 | 19 3 13·5 | 55·07 |
| 10 10·30 | 18 57 43·1 | 55·97 |
| 12 15·74 | 18 52 7·3 | 56·87 |
| 14 21·09 | 18 46 26·1 | 57·75 |
| 16 26·37 | 18 40 39·6 | 58·65 |
| 18 31·57 | 18 34 47·7 | 59·53 |
| 20 36·68 | 18 28 50·5 | 60·42 |
| 22 41·72 | N.18 22 48·0 | 61·28 |
| *WEDNESDAY* 22. | | |
| 24 46·67 | N.18 16 40·3 | 62·17 |
| 26 51·54 | 18 10 27·3 | 63·02 |
| 28 56·32 | 18 4 9·2 | 63·88 |
| 31 1·01 | 17 57 45·9 | 64·75 |
| 33 5·62 | 17 51 17·4 | 65·60 |
| 35 10·15 | 17 44 43·8 | 66·45 |
| 37 14·58 | 17 38 5·1 | 67·30 |
| 39 18·93 | 17 31 21·3 | 68·13 |
| 41 23·19 | 17 24 32·5 | 68·95 |
| 43 27·36 | 17 17 38·8 | 69·80 |
| 45 31·44 | 17 10 40·0 | 70·62 |
| 47 35·43 | 17 3 36·3 | 71·43 |
| 49 39·33 | 16 56 27·7 | 72·25 |
| 51 43·14 | 16 49 14·2 | 73·05 |
| 53 46·85 | 16 41 55·9 | 73·87 |
| 55 50·48 | 16 34 32·7 | 74·65 |
| 57 54·01 | 16 27 4·8 | 75·45 |
| 59 57·46 | 16 19 32·1 | 76·23 |
| 2 0·81 | 16 11 54·7 | 77·00 |
| 4 4·07 | 16 4 12·7 | 77·78 |
| 6 7·24 | 15 56 26·0 | 78·55 |
| 8 10·32 | 15 48 34·7 | 79·32 |
| 10 13·31 | 15 40 38·8 | 80·07 |
| 12 16·21 | 15 32 38·4 | 80·82 |
| 14 19·02 | N.15 24 33·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 14 19·02 | N.15 24 33·5 | 81·57 |
| 1 | 8 16 21·74 | 15 16 24·1 | 82·28 |
| 2 | 8 18 24·37 | 15 8 10·4 | 83·03 |
| 3 | 8 20 26·91 | 14 59 52·2 | 83·75 |
| 4 | 8 22 29·36 | 14 51 29·7 | 84·47 |
| 5 | 8 24 31·73 | 14 43 2·9 | 85·18 |
| 6 | 8 26 34·00 | 14 34 31·8 | 85·90 |
| 7 | 8 28 36·19 | 14 25 56·4 | 86·58 |
| 8 | 8 30 38·29 | 14 17 16·9 | 87·28 |
| 9 | 8 32 40·30 | 14 8 33·2 | 87·97 |
| 10 | 8 34 42·23 | 13 59 45·4 | 88·65 |
| 11 | 8 36 44·07 | 13 50 53·5 | 89·33 |
| 12 | 8 38 45·83 | 13 41 57·5 | 90·00 |
| 13 | 8 40 47·50 | 13 32 57·5 | 90·65 |
| 14 | 8 42 49·09 | 13 23 53·6 | 91·32 |
| 15 | 8 44 50·60 | 13 14 45·7 | 91·95 |
| 16 | 8 46 52·03 | 13 5 34·0 | 92·60 |
| 17 | 8 48 53·38 | 12 56 18·4 | 93·23 |
| 18 | 8 50 54·65 | 12 46 59·0 | 93·87 |
| 19 | 8 52 55·84 | 12 37 35·8 | 94·47 |
| 20 | 8 54 56·95 | 12 28 9·0 | 95·10 |
| 21 | 8 56 57·99 | 12 18 38·4 | 95·70 |
| 22 | 8 58 58·95 | 12 9 4·2 | 96·30 |
| 23 | 9 0 59·84 | N.11 59 26·4 | 96·90 |
| | *FRIDAY* 24. | | |
| 0 | 9 3 0·66 | N.11 49 45·0 | 97·48 |
| 1 | 9 5 1·40 | 11 40 0·1 | 98·05 |
| 2 | 9 7 2·08 | 11 30 11·8 | 98·63 |
| 3 | 9 9 2·69 | 11 20 20·0 | 99·20 |
| 4 | 9 11 3·23 | 11 10 24·8 | 99·75 |
| 5 | 9 13 3·71 | 11 0 26·3 | 100·30 |
| 6 | 9 15 4·12 | 10 50 24·5 | 100·85 |
| 7 | 9 17 4·47 | 10 40 19·4 | 101·38 |
| 8 | 9 19 4·75 | 10 30 11·1 | 101·90 |
| 9 | 9 21 4·98 | 10 19 59·7 | 102·43 |
| 10 | 9 23 5·15 | 10 9 45·1 | 102·95 |
| 11 | 9 25 5·27 | 9 59 27·4 | 103·45 |
| 12 | 9 27 5·33 | 9 49 6·7 | 103·95 |
| 13 | 9 29 5·34 | 9 38 43·0 | 104·43 |
| 14 | 9 31 5·30 | 9 28 16·4 | 104·93 |
| 15 | 9 33 5·21 | 9 17 46·8 | 105·40 |
| 16 | 9 35 5·08 | 9 7 14·4 | 105·87 |
| 17 | 9 37 4·90 | 8 56 39·2 | 106·33 |
| 18 | 9 39 4·67 | 8 46 1·2 | 106·78 |
| 19 | 9 41 4·41 | 8 35 20·5 | 107·23 |
| 20 | 9 43 4·11 | 8 24 37·1 | 107·67 |
| 21 | 9 45 3·77 | 8 13 51·1 | 108·10 |
| 22 | 9 47 3·40 | 8 3 2·5 | 108·53 |
| 23 | 9 49 2·99 | 7 52 11·3 | 108·93 |
| 24 | 9 51 2·55 | N. 7 41 17·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10h. |
|---|---|---|---|
| | *SATURDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 51 2·55 | N.7 41 17·7 | 109·35 |
| 1 | 9 53 2·08 | 7 30 21·6 | 109·75 |
| 2 | 9 55 1·59 | 7 19 23·1 | 110·13 |
| 3 | 9 57 1·07 | 7 8 22·3 | 110·53 |
| 4 | 9 59 0·53 | 6 57 19·1 | 110·90 |
| 5 | 10 0 59·97 | 6 46 13·7 | 111·27 |
| 6 | 10 2 59·40 | 6 35 6·1 | 111·63 |
| 7 | 10 4 58·80 | 6 23 56·3 | 111·98 |
| 8 | 10 6 58·20 | 6 12 44·4 | 112·33 |
| 9 | 10 8 57·59 | 6 1 30·4 | 112·67 |
| 10 | 10 10 56·96 | 5 50 14·4 | 113·00 |
| 11 | 10 12 56·34 | 5 38 56·4 | 113·32 |
| 12 | 10 14 55·71 | 5 27 36·5 | 113·63 |
| 13 | 10 16 55·08 | 5 16 14·7 | 113·93 |
| 14 | 10 18 54·45 | 5 4 51·1 | 114·23 |
| 15 | 10 20 53·83 | 4 53 25·7 | 114·52 |
| 16 | 10 22 53·22 | 4 41 58·6 | 114·80 |
| 17 | 10 24 52·61 | 4 30 29·8 | 115·08 |
| 18 | 10 26 52·02 | 4 18 59·3 | 115·33 |
| 19 | 10 28 51·44 | 4 7 27·3 | 115·58 |
| 20 | 10 30 50·88 | 3 55 53·8 | 115·85 |
| 21 | 10 32 50·34 | 3 44 18·7 | 116·08 |
| 22 | 10 34 49·83 | 3 32 42·2 | 116·30 |
| 23 | 10 36 49·34 | N.3 21 4·4 | 116·53 |
| | *SUNDAY* 26. | | |
| 0 | 10 38 48·88 | N.3 9 25·2 | 116·75 |
| 1 | 10 40 48·45 | 2 57 44·7 | 116·95 |
| 2 | 10 42 48·06 | 2 46 3·0 | 117·13 |
| 3 | 10 44 47·71 | 2 34 20·2 | 117·33 |
| 4 | 10 46 47·39 | 2 22 36·2 | 117·52 |
| 5 | 10 48 47·12 | 2 10 51·1 | 117·70 |
| 6 | 10 50 46·90 | 1 59 4·9 | 117·83 |
| 7 | 10 52 46·73 | 1 47 17·9 | 118·02 |
| 8 | 10 54 46·60 | 1 35 29·8 | 118·15 |
| 9 | 10 56 46·54 | 1 23 40·9 | 118·28 |
| 10 | 10 58 46·53 | 1 11 51·2 | 118·42 |
| 11 | 11 0 46·58 | 1 0 0·7 | 118·53 |
| 12 | 11 2 46·70 | 0 48 9·5 | 118·65 |
| 13 | 11 4 46·89 | 0 36 17·6 | 118·75 |
| 14 | 11 6 47·14 | 0 24 25·1 | 118·85 |
| 15 | 11 8 47·47 | 0 12 32·0 | 118·92 |
| 16 | 11 10 47·88 | N.0 0 38·5 | 119·02 |
| 17 | 11 12 48·36 | S.0 11 15·6 | 119·07 |
| 18 | 11 14 48·93 | 0 23 10·0 | 119·13 |
| 19 | 11 16 49·58 | 0 35 4·8 | 119·18 |
| 20 | 11 18 50·33 | 0 46 59·9 | 119·22 |
| 21 | 11 20 51·16 | 0 58 55·2 | 119·25 |
| 22 | 11 22 52·09 | 1 10 50·7 | 119·28 |
| 23 | 11 24 53·12 | 1 22 46·4 | 119·28 |
| 24 | 11 26 54·26 | S.1 34 42·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10h. |
|---|---|---|---|
| | *MONDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 26 54·26 | S. 1 34 42·1 | 119·28 |
| 1 | 11 28 55·50 | 1 46 37·8 | 119·30 |
| 2 | 11 30 56·85 | 1 58 33·6 | 119·27 |
| 3 | 11 32 58·30 | 2 10 29·2 | 119·23 |
| 4 | 11 34 59·88 | 2 22 24·7 | 119·22 |
| 5 | 11 37 1·57 | 2 34 20·0 | 119·17 |
| 6 | 11 39 3·38 | 2 46 15·0 | 119·12 |
| 7 | 11 41 5·31 | 2 58 9·7 | 119·07 |
| 8 | 11 43 7·38 | 3 10 4·1 | 118·98 |
| 9 | 11 45 9·57 | 3 21 58·0 | 118·92 |
| 10 | 11 47 11·90 | 3 33 51·5 | 118·82 |
| 11 | 11 49 14·37 | 3 45 44·4 | 118·72 |
| 12 | 11 51 16·98 | 3 57 36·7 | 118·62 |
| 13 | 11 53 19·73 | 4 9 28·4 | 118·48 |
| 14 | 11 55 22·63 | 4 21 19·3 | 118·37 |
| 15 | 11 57 25·69 | 4 33 9·5 | 118·22 |
| 16 | 11 59 28·89 | 4 44 58·8 | 118·08 |
| 17 | 12 1 32·25 | 4 56 47·3 | 117·92 |
| 18 | 12 3 35·78 | 5 8 34·8 | 117·75 |
| 19 | 12 5 39·46 | 5 20 21·3 | 117·58 |
| 20 | 12 7 43·32 | 5 32 6·8 | 117·38 |
| 21 | 12 9 47·34 | 5 43 51·1 | 117·20 |
| 22 | 12 11 51·54 | 5 55 34·3 | 116·99 |
| 23 | 12 13 55·92 | S. 6 7 16·2 | 116·77 |
| | *TUESDAY* 28. | | |
| 0 | 12 16 0·48 | S. 6 18 56·8 | 116·53 |
| 1 | 12 18 5·22 | 6 30 36·0 | 116·28 |
| 2 | 12 20 10·15 | 6 42 13·9 | 116·00 |
| 3 | 12 22 15·26 | 6 53 50·2 | 115·73 |
| 4 | 12 24 20·57 | 7 5 25·0 | 115·43 |
| 5 | 12 26 26·08 | 7 16 58·2 | 115·23 |
| 6 | 12 28 31·78 | 7 28 29·6 | 114·97 |
| 7 | 12 30 37·68 | 7 39 59·4 | 114·67 |
| 8 | 12 32 43·80 | 7 51 27·4 | 114·35 |
| 9 | 12 34 50·12 | 8 2 53·5 | 114·03 |
| 10 | 12 36 56·65 | 8 14 17·7 | 113·70 |
| 11 | 12 39 3·40 | 8 25 39·9 | 113·35 |
| 12 | 12 41 10·36 | 8 37 0·0 | 113·00 |
| 13 | 12 43 17·55 | 8 48 18·0 | 112·64 |
| 14 | 12 45 24·96 | 8 59 33·9 | 112·23 |
| 15 | 12 47 32·60 | 9 10 47·4 | 111·82 |
| 16 | 12 49 40·47 | 9 21 58·7 | 111·42 |
| 17 | 12 51 48·57 | 9 33 7·6 | 111·00 |
| 18 | 12 53 56·91 | 9 44 14·1 | 110·56 |
| 19 | 12 56 5·49 | 9 55 18·0 | 110·12 |
| 20 | 12 58 14·31 | 10 6 19·4 | 109·73 |
| 21 | 13 0 23·37 | 10 17 18·1 | 109·33 |
| 22 | 13 2 32·69 | 10 28 14·1 | 108·9[illegible] |
| 23 | 13 4 42·25 | 10 39 7·3 | 108·4[illegible] |
| 24 | 13 6 52·06 | S. 10 49 57·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *WEDNESDAY* 29. | | |
| m s | ° ′ ″ | ″ |
| 6 52 ·06 | S. 10 49 57 ·7 | 107 ·92 |
| 9 2 ·13 | 11 0 45 ·2 | 107 ·42 |
| 11 12 ·46 | 11 11 29 ·7 | 106 ·90 |
| 13 23 ·05 | 11 22 11 ·1 | 106 ·38 |
| 15 33 ·90 | 11 32 49 ·4 | 105 ·85 |
| 17 45 ·02 | 11 43 24 ·5 | 105 ·32 |
| 19 56 ·41 | 11 53 56 ·4 | 104 ·75 |
| 22 8 ·07 | 12 4 24 ·9 | 104 ·18 |
| 24 20 ·00 | 12 14 50 ·0 | 103 ·62 |
| 26 32 ·21 | 12 25 11 ·7 | 103 ·02 |
| 28 44 ·70 | 12 35 29 ·8 | 102 ·43 |
| 30 57 ·46 | 12 45 44 ·4 | 101 ·80 |
| 33 10 ·52 | 12 55 55 ·2 | 101 ·18 |
| 35 23 ·86 | 13 6 2 ·3 | 100 ·55 |
| 37 37 ·48 | 13 16 5 ·6 | 99 ·88 |
| 39 51 ·39 | 13 26 4 ·9 | 99 ·23 |
| 42 5 ·60 | 13 36 0 ·3 | 98 ·57 |
| 44 20 ·10 | 13 45 51 ·7 | 97 ·87 |
| 46 34 ·89 | 13 55 38 ·9 | 97 ·18 |
| 48 49 ·98 | 14 5 22 ·0 | 96 ·47 |
| 51 5 ·37 | 14 15 0 ·8 | 95 ·75 |
| 53 21 ·05 | 14 24 35 ·3 | 95 ·02 |
| 55 37 ·04 | 14 34 5 ·4 | 94 ·27 |
| 57 53 ·33 | S. 14 43 31 ·0 | 93 ·50 |
| *THURSDAY* 30. | | |
| 0 9 ·93 | S. 14 52 52 ·0 | 92 ·73 |
| 2 26 ·83 | 15 2 8 ·4 | 91 ·97 |
| 4 44 ·04 | 15 11 20 ·2 | 91 ·15 |
| 7 1 ·55 | 15 20 27 ·1 | 90 ·35 |
| 9 19 ·37 | 15 29 29 ·2 | 89 ·53 |
| 11 37 ·51 | 15 38 26 ·4 | 88 ·70 |
| 13 55 ·95 | 15 47 18 ·6 | 87 ·85 |
| 16 14 ·70 | 15 56 5 ·7 | 87 ·00 |
| 18 33 ·77 | 16 4 47 ·7 | 86 ·13 |
| 20 53 ·15 | 16 13 24 ·5 | 85 ·25 |
| 23 12 ·85 | 16 21 56 ·0 | 84 ·35 |
| 25 32 ·85 | 16 30 22 ·1 | 83 ·45 |
| 27 53 ·17 | 16 38 42 ·8 | 82 ·53 |
| 30 13 ·81 | 16 46 58 ·0 | 81 ·60 |
| 32 34 ·76 | 16 55 7 ·6 | 80 ·65 |
| 34 56 ·02 | 17 3 11 ·5 | 79 ·70 |
| 37 17 ·60 | 17 11 9 ·7 | 78 ·73 |
| 39 39 ·50 | 17 19 2 ·1 | 77 ·75 |
| 42 1 ·71 | 17 26 48 ·6 | 76 ·75 |
| 44 24 ·23 | 17 34 29 ·1 | 75 ·77 |
| 46 47 ·07 | 17 42 3 ·7 | 74 ·73 |
| 49 10 ·22 | 17 49 32 ·1 | 73 ·70 |
| 51 33 ·69 | 17 56 54 ·3 | 72 ·67 |
| 53 57 ·46 | 18 4 10 ·3 | 71 ·62 |
| 56 21 ·55 | S. 18 11 20 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 56 21 ·55 | S. 18 11 20 ·0 | 70 ·55 |
| 1 | 14 58 45 ·95 | 18 18 23 ·3 | 69 ·47 |
| 2 | 15 1 10 ·66 | 18 25 20 ·1 | 68 ·38 |
| 3 | 15 3 35 ·67 | 18 32 10 ·4 | 67 ·28 |
| 4 | 15 6 0 ·99 | 18 38 54 ·1 | 66 ·17 |
| 5 | 15 8 26 ·62 | 18 45 31 ·1 | 65 ·05 |
| 6 | 15 10 52 ·55 | 18 52 1 ·4 | 63 ·90 |
| 7 | 15 13 18 ·77 | 18 58 24 ·8 | 62 ·77 |
| 8 | 15 15 45 ·30 | 19 4 41 ·4 | 61 ·58 |
| 9 | 15 18 12 ·13 | 19 10 50 ·9 | 60 ·43 |
| 10 | 15 20 39 ·25 | 19 16 53 ·5 | 59 ·25 |
| 11 | 15 23 6 ·66 | 19 22 49 ·0 | 58 ·05 |
| 12 | 15 25 34 ·36 | 19 28 37 ·3 | 56 ·85 |
| 13 | 15 28 2 ·36 | 19 34 18 ·4 | 55 ·63 |
| 14 | 15 30 30 ·63 | 19 39 52 ·2 | 54 ·40 |
| 15 | 15 32 59 ·19 | 19 45 18 ·6 | 53 ·17 |
| 16 | 15 35 28 ·03 | 19 50 37 ·6 | 51 ·92 |
| 17 | 15 37 57 ·15 | 19 55 49 ·1 | 50 ·65 |
| 18 | 15 40 26 ·54 | 20 0 53 ·0 | 49 ·40 |
| 19 | 15 42 56 ·20 | 20 5 49 ·4 | 48 ·12 |
| 20 | 15 45 26 ·13 | 20 10 38 ·1 | 46 ·82 |
| 21 | 15 47 56 ·32 | 20 15 19 ·0 | 45 ·53 |
| 22 | 15 50 26 ·77 | 20 19 52 ·2 | 44 ·22 |
| 23 | 15 52 57 ·48 | S. 20 24 17 ·5 | 42 ·90 |
| | *SATURDAY, FEB.* 1. | | |
| 0 | 15 55 28 ·43 | S. 20 28 34 ·9 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☾ *Last Quarter* - - | 1 3 21 ·0 |
| ● New Moon - - - | 7 19 12 ·7 |
| ☽ *First Quarter* - - | 14 20 50 ·8 |
| ○ Full Moon - - - | 23 2 20 ·2 |
| ☾ *Last Quarter* - - | 30 13 55 ·5 |

| | d h |
|---|---|
| ☾ Perigee - - - - - - - - | 6 17 |
| ☾ Apogee - - - - - - - - | 18 22 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III^h. | P.L. of diff. | VI^h. | P.L. of diff. | IX^h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | Pollux | W. | 78 48 44 | 2593 | 80 27 49 | 2577 | 82 7 15 | 2562 | 83 47 2 |
| | Regulus | W. | 41 49 42 | 2564 | 43 29 26 | 2546 | 45 9 35 | 2529 | 46 50 8 |
| | Mars | E. | 38 52 49 | 2736 | 37 16 57 | 2721 | 35 40 45 | 2707 | 34 4 14 |
| | Antares | E. | 58 7 47 | 2540 | 56 27 29 | 2526 | 54 46 52 | 2512 | 53 5 55 |
| | Venus | E. | 59 14 53 | 2934 | 57 43 17 | 2916 | 56 11 19 | 2901 | 54 39 1 |
| | Sun | E. | 91 43 56 | 2867 | 90 10 55 | 2850 | 88 37 32 | 2835 | 87 3 49 |
| 2 | Pollux | W. | 92 11 20 | 2469 | 93 53 17 | 2455 | 95 35 34 | 2439 | 97 18 13 |
| | Regulus | W. | 55 18 52 | 2427 | 57 1 49 | 2410 | 58 45 9 | 2394 | 60 28 52 |
| | Antares | E. | 44 36 19 | 2429 | 42 53 26 | 2416 | 41 10 14 | 2403 | 39 26 43 |
| | Venus | E. | 46 52 9 | 2800 | 45 17 41 | 2783 | 43 42 51 | 2766 | 42 7 39 |
| | Sun | E. | 79 9 54 | 2736 | 77 34 2 | 2720 | 75 57 49 | 2703 | 74 21 13 |
| 3 | Regulus | W. | 69 13 18 | 2298 | 70 59 21 | 2283 | 72 45 45 | 2268 | 74 32 32 |
| | Spica ♍ | W. | 15 10 36 | 2296 | 16 56 42 | 2276 | 18 43 17 | 2259 | 20 30 17 |
| | Antares | E. | 30 44 57 | 2338 | 28 59 53 | 2330 | 27 14 37 | 2325 | 25 29 14 |
| | Venus | E. | 34 6 6 | 2666 | 32 28 41 | 2650 | 30 50 54 | 2635 | 29 12 46 |
| | Sun | E. | 66 12 48 | 2607 | 64 34 2 | 2591 | 62 54 55 | 2575 | 61 15 26 |
| 4 | Regulus | W. | 83 31 49 | 2184 | 85 20 41 | 2171 | 87 9 53 | 2158 | 88 59 24 |
| | Spica ♍ | W. | 29 31 15 | 2168 | 31 20 31 | 2155 | 33 10 7 | 2141 | 35 0 3 |
| | Venus | E. | 20 56 50 | 2544 | 19 16 38 | 2531 | 17 36 8 | 2517 | 15 55 19 |
| | Sun | E. | 52 52 57 | 2489 | 51 11 28 | 2477 | 49 29 42 | 2464 | 47 47 38 |
| 5 | Spica ♍ | W. | 44 14 9 | 2075 | 46 5 47 | 2066 | 47 57 39 | 2057 | 49 49 45 |
| | Sun | E. | 39 13 21 | 2401 | 37 29 48 | 2394 | 35 46 4 | 2387 | 34 2 10 |
| 10 | Sun | W. | 30 37 43 | 2594 | 32 16 46 | 2610 | 33 55 27 | 2627 | 35 33 46 |
| | Jupiter | E. | 38 27 52 | 2353 | 36 43 9 | 2375 | 34 58 58 | 2398 | 33 15 21 |
| | α Arietis | E. | 74 26 38 | 2283 | 72 40 14 | 2300 | 70 54 15 | 2318 | 69 8 42 |
| | Aldebaran | E. | 107 32 0 | 2262 | 105 45 4 | 2278 | 103 58 32 | 2295 | 102 12 25 |
| 11 | Sun | W. | 43 39 30 | 2734 | 45 15 25 | 2753 | 46 50 54 | 2772 | 48 25 58 |
| | α Arietis | E. | 60 27 50 | 2434 | 58 45 4 | 2455 | 57 2 47 | 2476 | 55 21 0 |
| | Aldebaran | E. | 93 28 9 | 2401 | 91 44 36 | 2420 | 90 1 30 | 2438 | 88 18 50 |
| 12 | Sun | W. | 56 14 50 | 2892 | 57 47 19 | 2913 | 59 19 22 | 2931 | 60 51 1 |
| | α Arietis | E. | 46 59 35 | 2607 | 45 20 50 | 2630 | 43 42 36 | 2655 | 42 4 55 |
| | Aldebaran | E. | 79 52 13 | 2553 | 78 12 13 | 2572 | 76 32 39 | 2591 | 74 53 31 |
| 13 | Sun | W. | 68 23 3 | 3049 | 69 52 15 | 3067 | 71 21 5 | 3087 | 72 49 31 |
| | α Arietis | E. | 34 4 43 | 2808 | 32 30 26 | 2837 | 30 56 46 | 2869 | 29 23 47 |
| | Aldebaran | E. | 66 44 13 | 2702 | 65 7 35 | 2720 | 63 31 22 | 2738 | 61 55 32 |
| | Pollux | E. | 108 45 55 | 2762 | 107 10 37 | 2778 | 105 35 40 | 2794 | 104 1 4 |
| 14 | Sun | W. | 80 6 22 | 3191 | 81 32 42 | 3207 | 82 58 43 | 3222 | 84 24 26 |
| | Fomalhaut | W. | 48 43 5 | 3715 | 49 59 36 | 3689 | 51 16 35 | 3666 | 52 33 58 |
| | α Pegasi | W. | 27 18 3 | 3543 | 28 37 40 | 3487 | 29 58 19 | 3442 | 31 19 48 |
| | Jupiter | W. | 16 5 47 | 3161 | 17 32 43 | 3131 | 19 0 15 | 3110 | 20 28 13 |
| | Aldebaran | E. | 54 2 1 | 2838 | 52 28 23 | 2855 | 50 55 7 | 2871 | 49 22 11 |
| | Pollux | E. | 96 13 7 | 2886 | 94 40 30 | 2900 | 93 8 11 | 2915 | 91 36 11 |
| 15 | Sun | W. | 91 28 36 | 3308 | 92 52 38 | 3321 | 94 16 25 | 3333 | 95 39 58 |
| | Fomalhaut | W. | 59 5 18 | 3581 | 60 24 13 | 3573 | 61 43 17 | 3566 | 63 2 28 |
| | α Pegasi | W. | 38 15 42 | 3295 | 39 39 59 | 3283 | 41 4 30 | 3274 | 42 29 12 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| Pollux | W. | 85 27 11 | 2531 | 87 7 41 | 2515 | 88 48 33 | 2500 | 90 29 46 | 2485 |
| Regulus | W. | 48 31 6 | 2495 | 50 12 27 | 2477 | 51 54 12 | 2461 | 53 36 20 | 2444 |
| Mars | E. | 32 27 22 | 2676 | 30 50 10 | 2661 | 29 12 38 | 2646 | 27 34 45 | 2632 |
| Antares | E. | 51 24 39 | 2484 | 49 43 3 | 2470 | 48 1 8 | 2456 | 46 18 53 | 2443 |
| Venus | E. | 53 6 22 | 2867 | 51 33 21 | 2851 | 49 59 59 | 2834 | 48 26 15 | 2817 |
| Sun | E. | 85 29 44 | 2802 | 83 55 19 | 2785 | 82 20 32 | 2769 | 80 45 24 | 2753 |
| Pollux | W. | 99 1 13 | 2410 | 100 44 33 | 2395 | 102 28 15 | 2382 | 104 12 16 | 2367 |
| Regulus | W. | 62 12 59 | 2362 | 63 57 29 | 2345 | 65 42 23 | 2330 | 67 27 39 | 2314 |
| Antares | E. | 37 42 55 | 2378 | 35 58 49 | 2367 | 34 14 27 | 2356 | 32 29 49 | 2346 |
| Venus | E. | 40 32 5 | 2732 | 38 56 8 | 2716 | 37 19 49 | 2699 | 35 43 8 | 2684 |
| Sun | E. | 72 44 16 | 2671 | 71 6 57 | 2655 | 69 29 16 | 2638 | 67 51 13 | 2622 |
| Regulus | W. | 76 19 41 | 2238 | 78 7 12 | 2225 | 79 55 3 | 2210 | 81 43 16 | 2196 |
| Spica ♍ | W. | 22 17 43 | 2225 | 24 5 33 | 2210 | 25 53 46 | 2196 | 27 42 20 | 2182 |
| Antares | E. | 23 43 46 | 2322 | 21 58 18 | 2325 | 20 12 55 | 2334 | 18 27 45 | 2352 |
| Venus | E. | 27 34 16 | 2603 | 25 55 25 | 2588 | 24 16 13 | 2574 | 22 36 42 | 2559 |
| Sun | E. | 59 35 36 | 2546 | 57 55 26 | 2531 | 56 14 56 | 2517 | 54 34 6 | 2503 |
| Regulus | W. | 90 49 13 | 2134 | 92 39 20 | 2124 | 94 29 43 | 2113 | 96 20 23 | 2103 |
| Spica ♍ | W. | 36 50 18 | 2118 | 38 40 50 | 2106 | 40 31 40 | 2095 | 42 22 47 | 2085 |
| Venus | E. | 14 14 13 | 2493 | 12 32 50 | 2482 | 10 51 11 | 2472 | 9 9 18 | 2463 |
| Sun | E. | 46 5 17 | 2441 | 44 22 40 | 2430 | 42 39 48 | 2419 | 40 56 41 | 2410 |
| Spica ♍ | W. | 51 42 2 | 2041 | 53 34 32 | 2035 | 55 27 11 | 2029 | 57 20 0 | 2023 |
| Sun | E. | 32 18 7 | 2376 | 30 33 58 | 2372 | 28 49 43 | 2369 | 27 5 24 | 2369 |
| Sun | W. | 37 11 43 | 2661 | 38 49 16 | 2678 | 40 26 25 | 2696 | 42 3 10 | 2715 |
| Jupiter | E. | 31 32 20 | 2450 | 29 49 56 | 2478 | 28 8 12 | 2508 | 26 27 10 | 2541 |
| α Arietis | E. | 67 23 36 | 2355 | 65 38 57 | 2375 | 63 54 46 | 2395 | 62 11 4 | 2415 |
| Aldebaran | E. | 100 26 42 | 2329 | 98 41 25 | 2346 | 96 56 33 | 2365 | 95 12 8 | 2383 |
| Sun | W. | 50 0 36 | 2812 | 51 34 48 | 2832 | 53 8 34 | 2852 | 54 41 55 | 2872 |
| α Arietis | E. | 53 39 43 | 2518 | 51 58 55 | 2540 | 50 18 38 | 2562 | 48 38 51 | 2585 |
| Aldebaran | E. | 86 36 37 | 2477 | 84 54 51 | 2496 | 83 13 32 | 2515 | 81 32 39 | 2534 |
| Sun | W. | 62 22 14 | 2971 | 63 53 3 | 2991 | 65 23 27 | 3010 | 66 53 27 | 3030 |
| α Arietis | E. | 40 27 45 | 2703 | 38 51 9 | 2728 | 37 15 6 | 2753 | 35 39 37 | 2780 |
| Aldebaran | E. | 73 14 49 | 2629 | 71 36 33 | 2646 | 69 58 41 | 2665 | 68 21 15 | 2684 |
| Sun | W. | 74 17 36 | 3122 | 75 45 19 | 3140 | 77 12 40 | 3157 | 78 39 41 | 3173 |
| α Arietis | E. | 27 51 29 | 2936 | 26 19 56 | 2975 | 24 49 12 | 3018 | 23 19 21 | 3065 |
| Aldebaran | E. | 60 20 5 | 2772 | 58 45 1 | 2789 | 57 10 19 | 2806 | 55 35 59 | 2823 |
| Pollux | E. | 102 26 49 | 2825 | 100 52 53 | 2841 | 99 19 18 | 2856 | 97 46 3 | 2871 |
| Sun | W. | 85 49 50 | 3253 | 87 14 57 | 3268 | 88 39 46 | 3282 | 90 4 19 | 3295 |
| Fomalhaut | W. | 53 51 41 | 3629 | 55 9 44 | 3615 | 56 28 2 | 3602 | 57 46 34 | 3591 |
| α Pegasi | W. | 32 41 59 | 3373 | 34 4 46 | 3348 | 35 28 2 | 3327 | 36 51 42 | 3310 |
| Jupiter | W. | 21 56 27 | 3087 | 23 24 53 | 3083 | 24 53 24 | 3081 | 26 21 57 | 3080 |
| Aldebaran | E. | 47 49 35 | 2902 | 46 17 18 | 2916 | 44 45 20 | 2931 | 43 13 41 | 2946 |
| Pollux | E. | 90 4 29 | 2943 | 88 33 4 | 2955 | 87 1 55 | 2969 | 85 31 4 | 2981 |
| Sun | W. | 97 3 17 | 3357 | 98 26 23 | 3368 | 99 49 16 | 3379 | 101 11 57 | 3388 |
| Fomalhaut | W. | 64 21 46 | 3555 | 65 41 9 | 3551 | 67 0 37 | 3548 | 68 20 8 | 3545 |
| α Pegasi | W. | 43 54 3 | 3260 | 45 19 1 | 3254 | 46 44 6 | 3250 | 48 9 16 | 3247 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 15 | Jupiter | W. | 27 50 31 | 3082 | 29 19 3 | 3085 | 30 47 31 | 3088 | 32 15 55 |
| | Aldebaran | E. | 41 42 21 | 2960 | 40 11 18 | 2974 | 38 40 33 | 2989 | 37 10 6 |
| | Pollux | E. | 84 0 28 | 2994 | 82 30 8 | 3006 | 81 0 3 | 3018 | 79 30 12 |
| 16 | Sun | W. | 102 34 27 | 3398 | 103 56 46 | 3407 | 105 18 55 | 3416 | 106 40 54 |
| | Fomalhaut | W. | 69 39 43 | 3543 | 70 59 20 | 3541 | 72 18 58 | 3539 | 73 38 39 |
| | α Pegasi | W. | 49 34 29 | 3244 | 50 59 46 | 3242 | 52 25 5 | 3241 | 53 50 26 |
| | Jupiter | W. | 39 36 30 | 3117 | 41 4 19 | 3123 | 42 32 1 | 3128 | 43 59 37 |
| | Aldebaran | E. | 29 42 16 | 3075 | 28 13 36 | 3091 | 26 45 15 | 3107 | 25 17 14 |
| | Pollux | E. | 72 4 26 | 3083 | 70 35 55 | 3092 | 69 7 35 | 3101 | 67 39 27 |
| | Regulus | E. | 108 45 49 | 3024 | 107 16 6 | 3031 | 105 46 32 | 3039 | 104 17 8 |
| 17 | Sun | W. | 113 28 45 | 3456 | 114 49 58 | 3462 | 116 11 5 | 3467 | 117 32 6 |
| | Fomalhaut | W. | 80 17 7 | 3539 | 81 36 48 | 3540 | 82 56 28 | 3540 | 84 16 8 |
| | α Pegasi | W. | 60 57 28 | 3237 | 62 22 54 | 3236 | 63 48 21 | 3236 | 65 13 48 |
| | Jupiter | W. | 51 16 18 | 3153 | 52 43 24 | 3155 | 54 10 27 | 3158 | 55 37 26 |
| | Pollux | E. | 60 21 22 | 3150 | 58 54 13 | 3159 | 57 27 15 | 3166 | 56 0 25 |
| | Regulus | E. | 96 52 0 | 3074 | 95 23 18 | 3078 | 93 54 42 | 3082 | 92 26 10 |
| 18 | Sun | W. | 124 16 10 | 3487 | 125 36 49 | 3489 | 126 57 26 | 3490 | 128 18 1 |
| | α Pegasi | W. | 72 21 16 | 3231 | 73 46 48 | 3230 | 75 12 22 | 3229 | 76 37 57 |
| | Jupiter | W. | 62 51 42 | 3169 | 64 18 28 | 3169 | 65 45 14 | 3169 | 67 12 0 |
| | α Arietis | W. | 28 43 20 | 3236 | 30 8 46 | 3224 | 31 34 27 | 3214 | 33 0 20 |
| | Pollux | E. | 48 48 25 | 3209 | 47 22 27 | 3217 | 45 56 38 | 3225 | 44 30 58 |
| | Regulus | E. | 85 4 26 | 3097 | 83 36 13 | 3099 | 82 8 2 | 3099 | 80 39 51 |
| 19 | α Pegasi | W. | 83 46 23 | 3218 | 85 12 11 | 3215 | 86 38 2 | 3213 | 88 3 55 |
| | Jupiter | W. | 74 25 59 | 3164 | 75 52 51 | 3162 | 77 19 46 | 3160 | 78 46 43 |
| | α Arietis | W. | 40 12 28 | 3164 | 41 39 20 | 3158 | 43 6 20 | 3151 | 44 33 28 |
| | Pollux | E. | 37 25 18 | 3285 | 36 0 49 | 3298 | 34 36 35 | 3314 | 33 12 40 |
| | Regulus | E. | 73 19 1 | 3098 | 71 50 49 | 3096 | 70 22 35 | 3095 | 68 54 19 |
| 20 | Jupiter | W. | 86 2 22 | 3140 | 87 29 43 | 3137 | 88 57 8 | 3132 | 90 24 39 |
| | α Arietis | W. | 51 51 3 | 3114 | 53 18 56 | 3107 | 54 46 57 | 3101 | 56 15 6 |
| | Aldebaran | W. | 18 50 19 | 3211 | 20 16 15 | 3187 | 21 42 40 | 3165 | 23 9 31 |
| | Pollux | E. | 26 19 12 | 3472 | 24 58 16 | 3516 | 23 38 10 | 3571 | 22 19 4 |
| | Regulus | E. | 61 32 19 | 3080 | 60 3 45 | 3077 | 58 35 7 | 3074 | 57 6 25 |
| 21 | Jupiter | W. | 97 43 38 | 3103 | 99 11 44 | 3096 | 100 39 58 | 3092 | 102 8 18 |
| | α Arietis | W. | 63 37 47 | 3061 | 65 6 44 | 3055 | 66 35 49 | 3048 | 68 5 2 |
| | Aldebaran | W. | 30 28 32 | 3079 | 31 57 7 | 3069 | 33 25 55 | 3058 | 34 54 56 |
| | Regulus | E. | 49 41 47 | 3050 | 48 12 36 | 3046 | 46 43 21 | 3043 | 45 14 2 |
| | Spica ♍ | E. | 103 28 5 | 3017 | 101 58 13 | 3011 | 100 28 14 | 3004 | 98 58 6 |
| 22 | Jupiter | W. | 109 31 47 | 3055 | 111 0 52 | 3049 | 112 30 4 | 3043 | 113 59 24 |
| | α Arietis | W. | 75 33 17 | 3006 | 77 3 23 | 2999 | 78 33 37 | 2991 | 80 4 1 |
| | Aldebaran | W. | 42 22 58 | 3002 | 43 53 8 | 2993 | 45 23 29 | 2985 | 46 54 1 |
| | Regulus | E. | 37 46 14 | 3022 | 36 16 28 | 3019 | 34 46 39 | 3017 | 33 16 47 |
| | Spica ♍ | E. | 91 25 36 | 2967 | 89 54 42 | 2960 | 88 23 39 | 2953 | 86 52 27 |
| 23 | α Arietis | W. | 87 38 16 | 2947 | 89 9 35 | 2940 | 90 41 3 | 2932 | 92 12 41 |
| | Aldebaran | W. | 54 29 20 | 2935 | 56 0 55 | 2926 | 57 32 41 | 2917 | 59 4 38 |
| | Pollux | W. | 15 44 3 | 4076 | 16 54 28 | 3877 | 18 8 11 | 3721 | 19 24 36 |
| | Regulus | E. | 25 47 23 | 3028 | 24 17 39 | 3030 | 22 48 4 | 3041 | 21 18 42 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P. L. of diff. | XV$^h$. | P. L. of diff. | XVIII$^h$. | P. L. of diff. | XXI$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ıpiter | W. | 33 44 14 | 3097 | 35 12 27 | 3102 | 36 40 34 | 3107 | 38 8 35 | 3112 |
| ldebaran | E. | 35 39 57 | 3017 | 34 10 5 | 3031 | 32 40 31 | 3046 | 31 11 15 | 3060 |
| ɔllux | E. | 78 0 36 | 3041 | 76 31 14 | 3052 | 75 2 5 | 3063 | 73 33 10 | 3072 |
| ɔN | W. | 108 2 44 | 3431 | 109 24 26 | 3438 | 110 46 0 | 3445 | 112 7 26 | 3451 |
| ɔmalhaut | W. | 74 58 20 | 3539 | 76 18 1 | 3538 | 77 37 43 | 3538 | 78 57 25 | 3538 |
| Pegasi | W. | 55 15 49 | 3239 | 56 41 12 | 3237 | 58 6 37 | 3237 | 59 32 2 | 3237 |
| ıpiter | W. | 45 27 8 | 3137 | 46 54 33 | 3141 | 48 21 53 | 3145 | 49 49 8 | 3149 |
| ldebaran | E. | 23 49 35 | 3144 | 22 22 19 | 3166 | 20 55 29 | 3191 | 19 29 9 | 3220 |
| ɔllux | E. | 66 11 29 | 3119 | 64 43 42 | 3128 | 63 16 6 | 3135 | 61 48 39 | 3143 |
| egulus | E. | 102 47 51 | 3052 | 101 18 43 | 3058 | 99 49 42 | 3064 | 98 20 48 | 3069 |
| ɔN | W. | 118 53 3 | 3475 | 120 13 55 | 3479 | 121 34 43 | 3481 | 122 55 28 | 3484 |
| ɔmalhaut | W. | 85 35 46 | 3544 | 86 55 22 | 3544 | 88 14 58 | 3546 | 89 34 31 | 3547 |
| Pegasi | W. | 66 39 16 | 3234 | 68 4 45 | 3234 | 69 30 14 | 3232 | 70 55 45 | 3232 |
| ıpiter | W. | 57 4 21 | 3163 | 58 31 14 | 3165 | 59 58 5 | 3167 | 61 24 54 | 3168 |
| ɔllux | E. | 54 33 43 | 3181 | 53 7 11 | 3188 | 51 40 47 | 3194 | 50 14 31 | 3202 |
| egulus | E. | 90 57 42 | 3089 | 89 29 19 | 3091 | 88 0 58 | 3094 | 86 32 41 | 3096 |
| ɔN | W. | 129 38 35 | 3492 | 130 59 8 | 3493 | 132 19 40 | 3492 | 133 40 13 | 3494 |
| Pegasi | W. | 78 3 35 | 3225 | 79 29 14 | 3224 | 80 54 55 | 3222 | 82 20 38 | 3220 |
| ıpiter | W. | 68 38 46 | 3168 | 70 5 33 | 3168 | 71 32 20 | 3167 | 72 59 8 | 3165 |
| Arietis | W. | 34 26 26 | 3194 | 35 52 42 | 3186 | 37 19 8 | 3178 | 38 45 44 | 3171 |
| ɔllux | E. | 43 5 28 | 3242 | 41 40 8 | 3251 | 40 14 59 | 3261 | 38 50 2 | 3272 |
| egulus | E. | 79 11 42 | 3100 | 77 43 32 | 3100 | 76 15 22 | 3100 | 74 47 12 | 3099 |
| Pegasi | W. | 89 29 52 | 3208 | 90 55 52 | 3205 | 92 21 55 | 3202 | 93 48 1 | 3199 |
| ıpiter | W. | 80 13 43 | 3154 | 81 40 47 | 3151 | 83 7 55 | 3148 | 84 35 6 | 3144 |
| Arietis | W. | 46 0 44 | 3138 | 47 28 7 | 3132 | 48 55 38 | 3125 | 50 23 17 | 3119 |
| ɔllux | E. | 31 49 4 | 3351 | 30 25 52 | 3374 | 29 3 6 | 3401 | 27 40 51 | 3433 |
| egulus | E. | 67 26 1 | 3091 | 65 57 40 | 3088 | 64 29 16 | 3086 | 63 0 49 | 3083 |
| ıpiter | W. | 91 52 15 | 3123 | 93 19 57 | 3119 | 94 47 44 | 3113 | 96 15 38 | 3108 |
| Arietis | W. | 57 43 22 | 3087 | 59 11 47 | 3081 | 60 40 19 | 3075 | 62 8 59 | 3069 |
| ldebaran | W. | 24 36 43 | 3131 | 26 4 15 | 3116 | 27 32 5 | 3103 | 29 0 11 | 3091 |
| ɔllux | E. | 21 1 11 | 3720 | 19 44 45 | 3823 | 18 30 7 | 3952 | 17 17 40 | 4117 |
| egulus | E. | 55 37 38 | 3066 | 54 8 47 | 3063 | 52 39 52 | 3059 | 51 10 52 | 3055 |
| ıpiter | W. | 103 36 45 | 3080 | 105 5 19 | 3074 | 106 34 1 | 3068 | 108 2 50 | 3061 |
| Arietis | W. | 69 34 24 | 3035 | 71 3 54 | 3027 | 72 33 33 | 3020 | 74 3 21 | 3014 |
| ldebaran | W. | 36 24 9 | 3038 | 37 53 34 | 3029 | 39 23 10 | 3020 | 40 52 58 | 3010 |
| egulus | E. | 43 44 37 | 3035 | 42 15 8 | 3031 | 40 45 34 | 3028 | 39 15 56 | 3025 |
| ıica ♍ | E. | 97 27 52 | 2993 | 95 57 30 | 2986 | 94 27 0 | 2980 | 92 56 22 | 2974 |
| ıpiter | W. | 115 28 52 | 3030 | 116 58 28 | 3023 | 118 28 12 | 3017 | 119 58 4 | 3010 |
| Arietis | W. | 81 34 33 | 2977 | 83 5 15 | 2970 | 84 36 6 | 2962 | 86 7 6 | 2954 |
| ldebaran | W. | 48 24 43 | 2968 | 49 55 36 | 2959 | 51 26 40 | 2950 | 52 57 55 | 2943 |
| egulus | E. | 31 46 53 | 3014 | 30 16 58 | 3015 | 28 47 4 | 3017 | 27 17 12 | 3019 |
| ıica ♍ | E. | 85 21 7 | 2939 | 83 49 38 | 2932 | 82 18 0 | 2925 | 80 46 13 | 2917 |
| Arietis | W. | 93 44 28 | 2918 | 95 16 24 | 2910 | 96 48 30 | 2903 | 98 20 45 | 2895 |
| ldebaran | W. | 60 36 45 | 2901 | 62 9 2 | 2892 | 63 41 31 | 2885 | 65 14 9 | 2877 |
| ɔllux | W. | 20 43 15 | 3494 | 22 3 46 | 3409 | 23 25 52 | 3339 | 24 49 19 | 3279 |
| egulus | E. | 19 49 37 | 3074 | 18 20 56 | 3101 | 16 52 48 | 3139 | 15 25 26 | 3191 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 23 | Spica ♍ | E. | 79 14 16 | 2910 | 77 42 10 | 2903 | 76 9 55 | 2896 | 74 37 3 |
| | Mars | E. | 119 34 10 | 3140 | 118 6 49 | 3132 | 116 39 18 | 3124 | 115 11 3 |
| 24 | Aldebaran | W. | 66 46 58 | 2868 | 68 19 58 | 2860 | 69 53 8 | 2852 | 71 26 2 |
| | Pollux | W. | 26 13 55 | 3226 | 27 39 33 | 3182 | 29 6 4 | 3142 | 30 33 2 |
| | Spica ♍ | E. | 66 53 2 | 2849 | 65 19 38 | 2842 | 63 46 5 | 2835 | 62 12 2 |
| | Mars | E. | 107 50 53 | 3076 | 106 22 14 | 3068 | 104 53 25 | 3060 | 103 24 2 |
| 25 | Aldebaran | W. | 79 15 51 | 2802 | 80 50 16 | 2795 | 82 24 51 | 2786 | 83 59 3 |
| | Pollux | W. | 37 59 21 | 2976 | 39 30 4 | 2955 | 41 1 13 | 2936 | 42 32 4 |
| | Spica ♍ | E. | 54 21 13 | 2787 | 52 46 28 | 2779 | 51 11 33 | 2772 | 49 36 2 |
| | Mars | E. | 95 56 57 | 3010 | 94 26 56 | 3002 | 92 56 45 | 2992 | 91 26 2 |
| | Antares | E. | 99 49 40 | 2802 | 98 15 14 | 2794 | 96 40 39 | 2785 | 95 5 5 |
| 26 | Pollux | W. | 50 15 48 | 2842 | 51 49 22 | 2828 | 53 23 13 | 2815 | 54 57 2 |
| | Regulus | W. | 13 31 17 | 3078 | 14 59 54 | 3002 | 16 30 5 | 2943 | 18 1 3 |
| | Spica ♍ | E. | 41 38 20 | 2723 | 40 2 10 | 2714 | 38 25 49 | 2707 | 36 49 1 |
| | Mars | E. | 83 51 50 | 2941 | 82 20 23 | 2931 | 80 48 44 | 2923 | 79 16 5 |
| | Antares | E. | 87 9 19 | 2737 | 85 33 28 | 2729 | 83 57 26 | 2720 | 82 21 1 |
| | Venus | E. | 119 5 35 | 3165 | 117 38 44 | 3155 | 116 11 41 | 3146 | 114 44 2 |
| 27 | Pollux | W. | 62 52 6 | 2743 | 64 27 49 | 2732 | 66 3 47 | 2720 | 67 40 |
| | Regulus | W. | 25 50 29 | 2753 | 27 25 58 | 2734 | 29 1 53 | 2716 | 30 38 1 |
| | Spica ♍ | E. | 28 43 54 | 2656 | 27 6 15 | 2649 | 25 28 26 | 2640 | 23 50 2 |
| | Mars | E. | 71 34 54 | 2869 | 70 1 55 | 2859 | 68 28 44 | 2850 | 66 55 2 |
| | Antares | E. | 74 17 20 | 2669 | 72 39 59 | 2661 | 71 2 27 | 2653 | 69 24 4 |
| | Venus | E. | 107 25 28 | 3090 | 105 57 6 | 3079 | 104 28 31 | 3070 | 102 59 4 |
| | Sun | E. | 134 16 18 | 3030 | 132 46 43 | 3020 | 131 16 55 | 3009 | 129 46 5 |
| 28 | Pollux | W. | 75 44 40 | 2656 | 77 22 19 | 2646 | 79 0 12 | 2636 | 80 38 1 |
| | Regulus | W. | 38 44 51 | 2629 | 40 23 7 | 2616 | 42 1 40 | 2604 | 43 40 3 |
| | Mars | E. | 59 5 19 | 2792 | 57 30 41 | 2782 | 55 55 50 | 2772 | 54 20 4 |
| | Antares | E. | 61 13 12 | 2601 | 59 34 18 | 2593 | 57 55 13 | 2583 | 56 15 5 |
| | Venus | E. | 95 32 50 | 3010 | 94 2 50 | 2999 | 92 32 36 | 2989 | 91 2 1 |
| | Sun | E. | 122 13 26 | 2945 | 120 42 4 | 2935 | 119 10 29 | 2924 | 117 38 4 |
| 29 | Pollux | W. | 88 52 21 | 2575 | 90 31 51 | 2565 | 92 11 34 | 2555 | 93 51 3 |
| | Regulus | W. | 51 58 44 | 2533 | 53 39 11 | 2522 | 55 19 53 | 2511 | 57 0 5 |
| | Mars | E. | 46 22 3 | 2711 | 44 45 37 | 2701 | 43 8 58 | 2690 | 41 32 |
| | Antares | E. | 47 56 32 | 2533 | 46 16 4 | 2525 | 44 35 26 | 2517 | 42 54 3 |
| | Venus | E. | 83 26 42 | 2926 | 81 54 56 | 2915 | 80 22 56 | 2905 | 78 50 4 |
| | Sun | E. | 109 56 8 | 2858 | 108 22 55 | 2847 | 106 49 28 | 2836 | 105 15 4 |
| 30 | Regulus | W. | 65 29 38 | 2444 | 67 12 10 | 2433 | 68 54 58 | 2422 | 70 38 |
| | Spica ♍ | W. | 11 26 45 | 2443 | 13 9 18 | 2427 | 14 52 14 | 2413 | 16 35 3 |
| | Mars | E. | 33 23 58 | 2625 | 31 45 37 | 2615 | 30 7 2 | 2603 | 28 28 1 |
| | Antares | E. | 34 27 47 | 2475 | 32 45 59 | 2470 | 31 4 3 | 2466 | 29 22 |
| | Venus | E. | 71 6 4 | 2838 | 69 32 26 | 2828 | 67 58 34 | 2816 | 66 24 2 |
| | Sun | E. | 97 23 44 | 2769 | 95 48 35 | 2757 | 94 13 11 | 2747 | 92 37 3 |
| 31 | Regulus | W. | 79 17 7 | 2357 | 81 1 43 | 2348 | 82 46 33 | 2337 | 84 31 3 |
| | Spica ♍ | W. | 25 16 11 | 2342 | 27 1 9 | 2331 | 28 46 23 | 2322 | 30 31 5 |
| | Venus | E. | 58 30 17 | 2751 | 56 54 45 | 2740 | 55 18 58 | 2729 | 53 42 5 |
| | Sun | E. | 84 35 40 | 2680 | 82 58 33 | 2669 | 81 21 11 | 2658 | 79 43 3 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| pica ♍ | E. | 73 4 56 | 2880 | 71 32 12 | 2873 | 69 59 18 | 2866 | 68 26 15 | 2858 |
| ars | E. | 113 43 49 | 3109 | 112 15 50 | 3101 | 110 47 41 | 3092 | 109 19 22 | 3084 |
| ldebaran | W. | 73 0 0 | 2835 | 74 33 42 | 2827 | 76 7 34 | 2818 | 77 41 38 | 2811 |
| ollux | W. | 32 1 24 | 3075 | 33 30 4 | 3047 | 34 59 19 | 3022 | 36 29 5 | 2998 |
| pica ♍ | E. | 60 38 29 | 2818 | 59 4 25 | 2811 | 57 30 12 | 2803 | 55 55 48 | 2795 |
| ars | E. | 101 55 17 | 3043 | 100 25 58 | 3035 | 98 56 28 | 3026 | 97 26 48 | 3018 |
| ldebaran | W. | 85 34 34 | 2770 | 87 9 41 | 2761 | 88 45 0 | 2753 | 90 20 29 | 2745 |
| ollux | W. | 44 4 41 | 2902 | 45 36 58 | 2885 | 47 9 36 | 2871 | 48 42 32 | 2856 |
| pica ♍ | E. | 48 1 11 | 2755 | 46 25 44 | 2747 | 44 50 7 | 2739 | 43 14 19 | 2731 |
| ars | E. | 89 55 50 | 2975 | 88 25 6 | 2967 | 86 54 12 | 2958 | 85 23 6 | 2950 |
| ntares | E. | 93 30 55 | 2770 | 91 55 48 | 2761 | 90 20 29 | 2753 | 88 45 0 | 2744 |
| ollux | W. | 56 31 47 | 2790 | 58 6 28 | 2778 | 59 41 25 | 2766 | 61 16 38 | 2754 |
| egulus | W. | 19 33 53 | 2859 | 21 7 5 | 2826 | 22 40 59 | 2799 | 24 15 28 | 2775 |
| pica ♍ | E. | 35 12 35 | 2690 | 33 35 42 | 2681 | 31 58 37 | 2673 | 30 21 21 | 2665 |
| ars | E. | 77 44 54 | 2905 | 76 12 41 | 2896 | 74 40 17 | 2887 | 73 7 42 | 2877 |
| ntares | E. | 80 44 49 | 2703 | 79 8 13 | 2695 | 77 31 26 | 2687 | 75 54 29 | 2678 |
| enus | E. | 113 17 2 | 3128 | 111 49 26 | 3118 | 110 21 38 | 3109 | 108 53 39 | 3099 |
| ollux | W. | 69 16 27 | 2699 | 70 53 9 | 2688 | 72 30 5 | 2677 | 74 7 16 | 2667 |
| egulus | W. | 32 14 52 | 2684 | 33 51 53 | 2670 | 35 29 13 | 2655 | 37 6 53 | 2642 |
| pica ♍ | E. | 22 12 13 | 2624 | 20 33 51 | 2616 | 18 55 18 | 2608 | 17 16 34 | 2602 |
| ars | E. | 65 21 45 | 2832 | 63 47 58 | 2821 | 62 13 58 | 2811 | 60 39 45 | 2802 |
| ntares | E. | 67 46 49 | 2635 | 66 8 42 | 2627 | 64 30 24 | 2618 | 62 51 54 | 2610 |
| enus | E. | 101 30 47 | 3050 | 100 1 36 | 3040 | 98 32 13 | 3031 | 97 2 38 | 3020 |
| UN | E. | 128 16 39 | 2988 | 126 46 11 | 2977 | 125 15 29 | 2966 | 123 44 34 | 2956 |
| ollux | W. | 82 16 39 | 2615 | 83 55 14 | 2605 | 85 34 2 | 2594 | 87 13 5 | 2585 |
| egulus | W. | 45 19 36 | 2580 | 46 58 59 | 2568 | 48 38 38 | 2556 | 50 18 33 | 2545 |
| ars | E. | 52 45 28 | 2752 | 51 9 57 | 2742 | 49 34 13 | 2731 | 47 58 15 | 2721 |
| ntares | E. | 54 36 26 | 2567 | 52 56 45 | 2558 | 51 16 52 | 2550 | 49 36 48 | 2541 |
| enus | E. | 89 31 31 | 2969 | 88 0 39 | 2958 | 86 29 33 | 2947 | 84 58 14 | 2937 |
| IN | E. | 116 6 37 | 2902 | 114 34 21 | 2891 | 113 1 51 | 2880 | 111 29 6 | 2870 |
| ollux | W. | 95 31 42 | 2535 | 97 12 6 | 2525 | 98 52 44 | 2516 | 100 33 35 | 2507 |
| egulus | W. | 58 42 5 | 2488 | 60 23 35 | 2477 | 62 5 20 | 2466 | 63 47 21 | 2455 |
| ars | E. | 39 54 56 | 2668 | 38 17 33 | 2658 | 36 39 56 | 2647 | 35 2 5 | 2635 |
| ntares | E. | 41 13 35 | 2501 | 39 32 23 | 2493 | 37 51 0 | 2486 | 36 9 28 | 2480 |
| enus | E. | 77 18 16 | 2882 | 75 45 34 | 2871 | 74 12 38 | 2861 | 72 39 29 | 2849 |
| IN | E. | 103 41 52 | 2814 | 102 7 42 | 2802 | 100 33 17 | 2792 | 98 58 38 | 2780 |
| egulus | W. | 72 21 19 | 2401 | 74 4 53 | 2389 | 75 48 43 | 2379 | 77 32 47 | 2369 |
| pica ♍ | W. | 18 19 4 | 2388 | 20 2 56 | 2377 | 21 47 4 | 2364 | 23 31 30 | 2354 |
| ars | E. | 26 49 6 | 2582 | 25 9 46 | 2571 | 23 30 11 | 2560 | 21 50 21 | 2548 |
| ntares | E. | 27 39 57 | 2462 | 25 57 50 | 2463 | 24 15 44 | 2465 | 22 33 42 | 2472 |
| enus | E. | 64 50 6 | 2794 | 63 15 30 | 2783 | 61 40 40 | 2772 | 60 5 36 | 2761 |
| IN | E. | 91 1 40 | 2724 | 89 25 32 | 2713 | 87 49 9 | 2702 | 86 12 32 | 2691 |
| egulus | W. | 86 16 59 | 2317 | 88 2 33 | 2307 | 89 48 23 | 2298 | 91 34 26 | 2287 |
| pica ♍ | W. | 32 17 35 | 2300 | 34 3 35 | 2290 | 35 49 49 | 2280 | 37 36 18 | 2270 |
| nus | E. | 52 6 43 | 2710 | 50 30 16 | 2699 | 48 53 34 | 2690 | 47 16 40 | 2680 |
| IN | E. | 78 5 44 | 2637 | 76 27 39 | 2627 | 74 49 21 | 2616 | 73 10 48 | 2606 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITEI

At $6^h\ 30^m$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·3 ·2 | O 1· ·4 |
| 2 | ·1 ● | O ·3 ·2 ·4 |
| 3 | 1·2 | O· ·3 ·4 |
| 4 | ·2 | O ·1 3· 4. |
| 5 | 1· | O 3· ·2 4· |
| 6 | 3· | O 1. 2· 4· |
| 7 | ·3 2· ·1 | O 4· |
| 8 | ·3 ·2 | O 4· 1· |
| 9 | 4· ·1 | O ·3 ·2 |
| 10 | 1·O 4· | O 2· ·3 |
| 11 | 4· ·2 | O ·1 3· |
| 12 | 4· 1· | O 3· |
| 13 | ·4 3· | O ·1 2· |
| 14 | ·4 ·3 ·1 2· | O |
| 15 | ·4 ·3 ·2 | O 1· |
| 16 | ·4 ·1 | O ·3 ·2 |
| 17 | | O 1· 2· ·4 ·3 |
| 18 | ·1 ● 2· | O 3· ·4 |
| 19 | ·2 ● 1· | O 3· ·4 |
| 20 | 3· | O ·1 2. ·4 |
| 21 | ·3 1· 2· | O 4. |
| 22 | ·3 ·2 | O 1. 4· |
| 23 | ·1 | ·O 3 ·2 4· |
| 24 | | O 1· 2· 4· ·3 |
| 25 | 2· | 4 ·1 O· 3. |
| 26 | 4· | 1· ·2 O 3· |
| 27 | 4· 3· | O ·1 2. |
| 28 | 4· 3· 1· | O |
| 29 | ·4 ·3 ·2 | O 1. |
| 30 | ·4 ·1 ·3 | O ·2 |
| 31 | ·4 | O 1· 2· ·3 |

This Table represents, at $6^h\ 30^m$ after *Mean Noon* of each day of the month, the relative posi of the images of Jupiter and his Satellites, as they would appear (disregarding their latitude an inverting telescope. Jupiter is indicated by the white circles (O) in the centre of the p the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distin the Satellites from each other; and their positions are such as to indicate the directions of the S lites' motions, which are in all cases to be considered as *towards the numerals*. When a Satell at its greatest elongation, the point is placed above or below the centre of the numeral. A w circle (O) at the left or right hand of the page, denotes that the Satellite placed by the side o *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shado Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| SATELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 2* | 9 34 10·3 | 4 23 40·1 | Em. |
| | 4† | 4 3 11·7 | 22 59 40·2 | Em. |
| | 5 | 22 32 7·8 | 17 35 35·0 | Em. |
| | 7 | 17 1 10·0 | 12 11 35·9 | Em. |
| | 9 | 11 30 4·0 | 6 47 28·7 | Em. |
| | 11* | 5 59 4·3 | 1 23 27·7 | Em. |
| | 13 | 0 27 59·6 | 19 59 21·7 | Em. |
| | 14 | 18 57 0·6 | 14 35 21·5 | Em. |
| | 16 | 13 25 53·9 | 9 11 13·5 | Em. |
| | 18* | 7 54 53·2 | 3 47 11·6 | Em. |
| | 20 | 2 23 47·4 | 22 23 4·5 | Em. |
| | 21 | 20 52 47·3 | 16 59 3·1 | Em. |
| | 23 | 15 21 39·6 | 11 34 54·1 | Em. |
| | 25 | 9 50 37·6 | 6 10 50·8 | Em. |
| | 27 | 4 19 30·8 | 0 46 42·8 | Em. |
| | 28 | 22 48 29·3 | 19 22 40·0 | Em. |
| | 30 | 17 17 20·3 | 13 58 29·7 | Em. |
| II. | 1 | 14 19 29·3 | 9 5 49·3 | Im. |
| | 1 | 16 49 49·3 | 11 36 34·0 | Em. |
| | 5* | 6 7 56·9 | 1 8 42·4 | Em. |
| | 8 | 19 26 6·2 | 14 40 52·5 | Em. |
| | 12* | 8 44 15·9 | 4 13 3·0 | Em. |
| | 15 | 22 2 28·5 | 17 45 16·4 | Em. |
| | 19 | 11 20 40·4 | 7 17 29·1 | Em. |
| | 23 | 0 38 56·9 | 20 49 46·4 | Em. |
| | 26 | 13 57 10·6 | 10 22 0·9 | Em. |
| | 30 | 3 15 31·0 | 23 54 22·2 | Em. |
| III. | 1 | 23 34 56·4 | 18 22 47·7 | Im. |
| | 2 | 2 19 16·5 | 21 7 34·8 | Em. |
| | 9 | 3 37 38·9 | 22 53 46·0 | Im. |
| | 9* | 6 20 55·9 | 1 37 29·8 | Em. |
| | 16* | 7 40 16·3 | 3 24 39·1 | Im. |
| | 16 | 10 22 29·8 | 6 7 19·3 | Em. |
| | 23 | 11 42 57·5 | 7 55 36·1 | Im. |
| | 23 | 14 24 7·6 | 10 37 12·7 | Em. |
| | 30 | 15 46 9·3 | 12 27 3·7 | Im. |
| | 30 | 18 26 17·2 | 15 7 37·9 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | 2* 0 51 | | 1* 3 29 | 1 5 46 | 1* 4 49 | 1 7 4 |
| | 4 19 28 | | 3 22 5 | 3* 0 22 | 3† 23 25 | 3* 1 40 |
| | 5 14 4 | | 4 16 42 | 4 18 59 | 4 18 0 | 5 20 16 |
| | 7 8 41 | | 6 11 18 | 6 13 35 | 6 12 36 | 6 14 51 |
| | 9* 3 18 | | 8 5 55 | 8 8 12 | 8 7 12 | 8 9 27 |
| | 11 21 55 | In | 10* 0 32 | 10* 2 49 | 10* 1 48 | 10* 4 3 |
| | 12 16 31 | | 11 19 8 | 12 21 25 | 12 20 24 | 12 22 39 |
| | 14 11 8 | | 13 13 45 | 13 16 2 | 13 15 0 | 13 17 15 |
| | 16† 5 45 | the | 15 8 22 | 15 10 39 | 15 9 35 | 15 11 51 |
| | 18† 0 22 | | 17* 2 59 | 17† 5 16 | 17* 4 11 | 17 6 26 |
| | 19 18 59 | | 19 21 35 | 19 23 52 | 19 22 47 | 19† 1 2 |
| | 21 13 36 | Shadow. | 20 16 12 | 20 18 29 | 20 17 23 | 20 19 38 |
| | 23 8 13 | | 22 10 49 | 22 13 6 | 22 11 59 | 22 14 14 |
| | 25* 2 50 | | 24† 5 26 | 24 7 43 | 24 6 35 | 24 8 50 |
| | 27 21 27 | | 26 0 3 | 26* 2 20 | 26† 1 10 | 26* 3 26 |
| | 28 16 5 | | 27 18 40 | 28 20 57 | 27 19 46 | 28 22 1 |
| | 30 10 42 | | 29 13 17 | 29 15 34 | 29 14 22 | 29 16 37 |
| | | | 31 7 55 | 31 10 12 | 31 8 58 | 31 11 13 |
| II. | 1 6 24 | 1 9 6 | 3* 1 32 | 3* 4 14 | 3* 4 9 | 3 6 46 |
| | 5 19 59 | | 6 15 8 | 6 17 49 | 6 17 42 | 7 20 19 |
| | 8 9 34 | | 10* 4 44 | 10 7 26 | 10 7 16 | 10 9 52 |
| | 12 23 9 | In | 13 18 20 | 14 21 2 | 14 20 49 | 14 23 25 |
| | 15 12 45 | | 17 7 58 | 17 10 39 | 17 10 23 | 17 12 59 |
| | 19* 2 21 | the | 21 21 35 | 21 0 16 | 21 23 56 | 21* 2 31 |
| | 22 15 58 | | 24 11 13 | 24 13 54 | 24 13 29 | 24 16 5 |
| | 26† 5 35 | Shadow. | 28 0 50 | 28* 3 31 | 28* 3 2 | 28† 5 38 |
| | 29 19 12 | | 31 14 29 | 31 17 10 | 31 16 36 | 31 19 11 |
| III. | 1 12 50 | 1 16 4 | 5* 3 12 | 5 6 26 | 5 8 33 | 5 11 30 |
| | 8 17 31 | 9 20 45 | 12 7 55 | 12 11 8 | 12 13 4 | 12 16 0 |
| | 16 22 16 | 16* 1 29 | 19 12 42 | 19 15 55 | 19 17 35 | 20 20 31 |
| | 23* 3 4 | 23 6 17 | 26 17 31 | 27 20 43 | 27 22 6 | 27 1 0 |
| | 30 7 55 | 30 11 7 | | | | |
| IV. | 16 17 4 | 17 19 51 | 8 8 20 | 8 11 12 | | |
| | | | 25† 5 14 | 25 7 56 | | |

| Day of the Month. | For correcting the Places of the Fixed Stars, At Mean Midnight. Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·082875. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | −0·5720 | +1·2999 | +9·5054 | +0·6695 | 5 15 9·37 | 285 | 0 | ·000 |
| 2 | 0·6082 | 1·2983 | 9·5100 | 0·6695 | 5 11 13·46 | 286 | 1 | ·003 |
| 3 | 0·6416 | 1·2965 | 9·5146 | 0·6694 | 5 7 17·55 | 287 | 2 | ·005 |
| 4 | −0·6724 | +1·2946 | +9·5190 | +0·6693 | 5 3 21·64 | 288 | 3 | ·008 |
| 5 | 0·7011 | 1·2925 | 9·5234 | 0·6691 | 4 59 25·72 | 289 | 4 | ·011 |
| 6 | 0·7278 | 1·2902 | 9·5278 | 0·6689 | 4 55 29·81 | 290 | 5 | ·014 |
| 7 | −0·7529 | +1·2878 | +9·5320 | +0·6686 | 4 51 33·90 | 291 | 6 | ·016 |
| 8 | 0·7765 | 1·2853 | 9·5362 | 0·6682 | 4 47 37·99 | 292 | 7 | ·019 |
| 9 | 0·7987 | 1·2827 | 9·5404 | 0·6678 | 4 43 42·08 | 293 | 8 | ·022 |
| 10 | −0·8197 | +1·2798 | +9·5444 | +0·6674 | 4 39 46·17 | 294 | 9 | ·025 |
| 11 | 0·8396 | 1·2768 | 9·5484 | 0·6669 | 4 35 50·26 | 295 | 10 | ·027 |
| 12 | 0·8585 | 1·2736 | 9·5524 | 0·6663 | 4 31 54·35 | 296 | 11 | ·030 |
| 13 | −0·8765 | +1·2703 | +9·5563 | +0·6657 | 4 27 58·44 | 297 | 12 | ·033 |
| 14 | 0·8936 | 1·2668 | 9·5601 | 0·6651 | 4 24 2·52 | 298 | 13 | ·036 |
| 15 | 0·9100 | 1·2632 | 9·5639 | 0·6644 | 4 20 6·61 | 299 | 14 | ·038 |
| 16 | −0·9256 | +1·2594 | +9·5676 | +0·6637 | 4 16 10·70 | 300 | 15 | ·041 |
| 17 | 0·9405 | 1·2554 | 9·5712 | 0·6629 | 4 12 14·79 | 301 | 16 | ·044 |
| 18 | 0·9548 | 1·2512 | 9·5748 | 0·6621 | 4 8 18·88 | 302 | 17 | ·047 |
| 19 | −0·9685 | +1·2469 | +9·5783 | +0·6613 | 4 4 22·97 | 303 | 18 | ·049 |
| 20 | 0·9817 | 1·2424 | 9·5817 | 0·6604 | 4 0 27·06 | 304 | 19 | ·052 |
| 21 | 0·9943 | 1·2377 | 9·5851 | 0·6595 | 3 56 31·15 | 305 | 20 | ·055 |
| 22 | −1·0064 | +1·2328 | +9·5885 | +0·6585 | 3 52 35·24 | 306 | 21 | ·058 |
| 23 | 1·0181 | 1·2277 | 9·5917 | 0·6576 | 3 48 39·33 | 307 | 22 | ·060 |
| 24 | 1·0294 | 1·2224 | 9·5949 | 0·6566 | 3 44 43·42 | 308 | 23 | ·063 |
| 25 | −1·0402 | +1·2169 | +9·5981 | +0·6556 | 3 40 47·51 | 309 | 24 | ·066 |
| 26 | 1·0506 | 1·2112 | 9·6013 | 0·6545 | 3 36 51·60 | 310 | 25 | ·068 |
| 27 | 1·0606 | 1·2053 | 9·6043 | 0·6535 | 3 32 55·69 | 311 | 26 | ·071 |
| 28 | −1·0703 | +1·1992 | +9·6073 | +0·6524 | 3 28 59·78 | 312 | 27 | ·074 |
| 29 | 1·0796 | 1·1929 | 9·6103 | 0·6513 | 3 25 3·87 | 313 | 28 | ·077 |
| 30 | 1·0886 | 1·1863 | 9·6132 | 0·6502 | 3 21 7·96 | 314 | 29 | ·079 |
| 31 | 1·0973 | 1·1795 | 9·6160 | 0·6491 | 3 17 12·05 | 315 | 30 | ·082 |
| 32 | −1·1057 | +1·1724 | +9·6188 | +0·6480 | 3 13 16·14 | 316 | 31 | ·085 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Sat. | 1 | 21 0 10·26 | 10·165 | S. 17 2 47·3 | 43·25 | 1 8·17 | 13 55·87 |
| *Sun.* | 2 | 21 4 14·21 | 10·131 | 16 45 29·4 | 43·98 | 1 8·05 | 14 3·24 |
| Mon. | 3 | 21 8 17·35 | 10·097 | 16 27 54·0 | 44·69 | 1 7·93 | 14 9·80 |
| Tues. | 4 | 21 12 19·67 | 10·063 | 16 10 1·4 | 45·39 | 1 7·82 | 14 15·56 |
| Wed. | 5 | 21 16 21·19 | 10·030 | 15 51 52·1 | 46·06 | 1 7·70 | 14 20·51 |
| Thur. | 6 | 21 20 21·90 | 9·996 | 15 33 26·6 | 46·72 | 1 7·59 | 14 24·65 |
| Frid. | 7 | 21 24 21·80 | 9·963 | 15 14 45·2 | 47·37 | 1 7·47 | 14 27·99 |
| Sat. | 8 | 21 28 20·90 | 9·929 | 14 55 48·3 | 48·00 | 1 7·36 | 14 30·53 |
| *Sun.* | 9 | 21 32 19·20 | 9·896 | 14 36 36·4 | 48·60 | 1 7·25 | 14 32·27 |
| Mon. | 10 | 21 36 16·71 | 9·863 | 14 17 10·0 | 49·19 | 1 7·14 | 14 33·22 |
| Tues. | 11 | 21 40 13·41 | 9·830 | 13 57 29·5 | 49·75 | 1 7·03 | 14 33·37 |
| Wed. | 12 | 21 44 9·33 | 9·797 | 13 37 35·4 | 50·31 | 1 6·92 | 14 32·73 |
| Thur. | 13 | 21 48 4·47 | 9·765 | 13 17 27·9 | 50·84 | 1 6·81 | 14 31·32 |
| Frid. | 14 | 21 51 58·83 | 9·734 | 12 57 7·7 | 51·36 | 1 6·71 | 14 29·14 |
| Sat. | 15 | 21 55 52·45 | 9·703 | 12 36 35·0 | 51·86 | 1 6·60 | 14 26·21 |
| *Sun.* | 16 | 21 59 45·32 | 9·672 | 12 15 50·3 | 52·35 | 1 6·50 | 14 22·53 |
| Mon. | 17 | 22 3 37·45 | 9·643 | 11 54 54·0 | 52·82 | 1 6·40 | 14 18·12 |
| Tues. | 18 | 22 7 28·88 | 9·613 | 11 33 46·4 | 53·26 | 1 6·30 | 14 13·01 |
| Wed. | 19 | 22 11 19·59 | 9·585 | 11 12 28·1 | 53·70 | 1 6·20 | 14 7·18 |
| Thur. | 20 | 22 15 9·62 | 9·558 | 10 50 59·3 | 54·12 | 1 6·11 | 14 0·68 |
| Frid. | 21 | 22 18 59·00 | 9·530 | 10 29 20·5 | 54·52 | 1 6·01 | 13 53·52 |
| Sat. | 22 | 22 22 47·72 | 9·504 | 10 7 32·0 | 54·90 | 1 5·92 | 13 45·72 |
| *Sun.* | 23 | 22 26 35·82 | 9·479 | 9 45 34·3 | 55·27 | 1 5·83 | 13 37·28 |
| Mon. | 24 | 22 30 23·31 | 9·455 | 9 23 27·7 | 55·63 | 1 5·75 | 13 28·25 |
| Tues. | 25 | 22 34 10·22 | 9·431 | 9 1 12·5 | 55·97 | 1 5·66 | 13 18·63 |
| Wed. | 26 | 22 37 56·56 | 9·408 | 8 38 49·3 | 56·29 | 1 5·58 | 13 8·44 |
| Thur. | 27 | 22 41 42·35 | 9·386 | 8 16 18·4 | 56·60 | 1 5·50 | 12 57·71 |
| Frid. | 28 | 22 45 27·62 | 9·365 | 7 53 40·1 | 56·88 | 1 5·42 | 12 46·46 |
| Sat. | 29 | 22 49 12·39 | | S. 7 30 54·9 | | 1 5·34 | 12 34·70 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·18 from the *Sidere*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| Sat. | 1 | 21 0 7·91 | S.17 2 57·3 | 16 14·8 | 13 55·80 | 20 46 12·11 |
| *Sun.* | 2 | 21 4 11·84 | 16 45 39·7 | 16 14·6 | 14 3·17 | 20 50 8·66 |
| Mon. | 3 | 21 8 14·97 | 16 28 4·5 | 16 14·5 | 14 9·75 | 20 54 5·22 |
| Tues. | 4 | 21 12 17·28 | 16 10 12·2 | 16 14·3 | 14 15·51 | 20 58 1·77 |
| Wed. | 5 | 21 16 18·80 | 15 52 3·1 | 16 14·2 | 14 20·47 | 21 1 58·33 |
| Thur. | 6 | 21 20 19·50 | 15 33 37·8 | 16 14·0 | 14 24·62 | 21 5 54·88 |
| Frid. | 7 | 21 24 19·40 | 15 14 56·6 | 16 13·8 | 14 27·96 | 21 9 51·44 |
| Sat. | 8 | 21 28 18·50 | 14 55 59·9 | 16 13·6 | 14 30·51 | 21 13 47·99 |
| *Sun.* | 9 | 21 32 16·80 | 14 36 48·2 | 16 13·5 | 14 32·26 | 21 17 44·55 |
| Mon. | 10 | 21 36 14·32 | 14 17 22·0 | 16 13·3 | 14 33·21 | 21 21 41·10 |
| Tues. | 11 | 21 40 11·03 | 13 57 41·6 | 16 13·1 | 14 33·37 | 21 25 37·66 |
| Wed. | 12 | 21 44 6·95 | 13 37 47·6 | 16 12·9 | 14 32·74 | 21 29 34·21 |
| Thur. | 13 | 21 48 2·10 | 13 17 40·3 | 16 12·7 | 14 31·34 | 21 33 30·76 |
| Frid. | 14 | 21 51 56·48 | 12 57 20·1 | 16 12·5 | 14 29·17 | 21 37 27·32 |
| Sat. | 15 | 21 55 50·12 | 12 36 47·5 | 16 12·3 | 14 26·25 | 21 41 23·87 |
| *Sun.* | 16 | 21 59 43·00 | 12 16 2·8 | 16 12·1 | 14 22·58 | 21 45 20·43 |
| Mon. | 17 | 22 3 35·15 | 11 55 6·6 | 16 11·9 | 14 18·17 | 21 49 16·98 |
| Tues. | 18 | 22 7 26·60 | 11 33 59·0 | 16 11·7 | 14 13·06 | 21 53 13·53 |
| Wed. | 19 | 22 11 17·33 | 11 12 40·7 | 16 11·5 | 14 7·25 | 21 57 10·09 |
| Thur. | 20 | 22 15 7·39 | 10 51 12·0 | 16 11·3 | 14 0·75 | 22 1 6·64 |
| Frid. | 21 | 22 18 56·79 | 10 29 33·1 | 16 11·0 | 13 53·60 | 22 5 3·19 |
| Sat. | 22 | 22 22 45·54 | 10 7 44·6 | 16 10·8 | 13 45·80 | 22 8 59·75 |
| *Sun.* | 23 | 22 26 33·67 | 9 45 46·8 | 16 10·6 | 13 37·37 | 22 12 56·30 |
| Mon. | 24 | 22 30 21·19 | 9 23 40·2 | 16 10·3 | 13 28·34 | 22 16 52·85 |
| Tues. | 25 | 22 34 8·13 | 9 1 25·0 | 16 10·1 | 13 18·73 | 22 20 49·41 |
| Wed. | 26 | 22 37 54·50 | 8 39 1·7 | 16 9·9 | 13 8·54 | 22 24 45·96 |
| Thur. | 27 | 22 41 40·32 | 8 16 30·6 | 16 9·6 | 12 57·81 | 22 28 42·51 |
| Frid. | 28 | 22 45 25·63 | 7 53 52·2 | 16 9·4 | 12 46·56 | 22 32 39·06 |
| Sat. | 29 | 22 49 10·43 | S.7 31 6·9 | 16 9·1 | 12 34·81 | 22 36 35·62 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnig |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 312 33 52 ·3 | S. 0 ·16 | 9 ·9937622 | 16 12 ·3 | 16 16 ·2 | 59 28 ·2 | 59 42 |
| 2 | 313 34 43 ·7 | S. 0 ·03 | 9 ·9938334 | 16 19 ·5 | 16 22 ·3 | 59 54 ·6 | 60 4 |
| 3 | 314 35 34 ·2 | N. 0 ·09 | 9 ·9939062 | 16 24 ·3 | 16 25 ·5 | 60 12 ·1 | 60 16 |
| 4 | 315 36 23 ·6 | 0 ·20 | 9 ·9939804 | 16 25 ·9 | 16 25 ·3 | 60 18 ·0 | 60 15 |
| 5 | 316 37 12 ·6 | 0 ·29 | 9 ·9940559 | 16 23 ·6 | 16 21 ·1 | 60 9 ·7 | 60 0 |
| 6 | 317 37 59 ·1 | 0 ·35 | 9 ·9941326 | 16 17 ·5 | 16 13 ·1 | 59 47 ·3 | 59 31 |
| 7 | 318 38 45 ·0 | 0 ·39 | 9 ·9942104 | 16 7 ·9 | 16 2 ·1 | 59 12 ·1 | 58 50 |
| 8 | 319 39 29 ·6 | 0 ·39 | 9 ·9942894 | 15 55 ·7 | 15 49 ·0 | 58 27 ·3 | 58 2 |
| 9 | 320 40 12 ·8 | 0 ·37 | 9 ·9943696 | 15 42 ·1 | 15 35 ·1 | 57 37 ·1 | 57 11 |
| 10 | 321 40 54 ·5 | 0 ·31 | 9 ·9944509 | 15 28 ·1 | 15 21 ·5 | 56 46 ·0 | 56 21 |
| 11 | 322 41 34 ·5 | 0 ·23 | 9 ·9945334 | 15 15 ·1 | 15 9 ·2 | 55 58 ·1 | 55 36 |
| 12 | 323 42 12 ·8 | 0 ·13 | 9 ·9946172 | 15 3 ·9 | 14 59 ·1 | 55 17 ·2 | 54 59 |
| 13 | 324 42 49 ·4 | N. 0 ·01 | 9 ·9947023 | 14 55 ·1 | 14 51 ·7 | 54 44 ·7 | 54 3 |
| 14 | 325 43 24 ·2 | S. 0 ·12 | 9 ·9947890 | 14 49 ·0 | 14 47 ·0 | 54 22 ·5 | 54 1 |
| 15 | 326 43 57 ·3 | 0 ·26 | 9 ·9948773 | 14 45 ·8 | 14 45 ·2 | 54 10 ·5 | 54 |
| 16 | 327 44 28 ·5 | 0 ·39 | 9 ·9949672 | 14 45 ·4 | 14 46 ·2 | 54 9 ·1 | 54 1 |
| 17 | 328 44 57 ·9 | 0 ·51 | 9 ·9950588 | 14 47 ·5 | 14 49 ·5 | 54 16 ·9 | 54 2 |
| 18 | 329 45 25 ·5 | 0 ·61 | 9 ·9951523 | 14 51 ·9 | 14 54 ·8 | 54 33 ·0 | 54 4 |
| 19 | 330 45 51 ·2 | 0 ·69 | 9 ·9952476 | 14 58 ·0 | 15 1 ·6 | 54 55 ·6 | 55 |
| 20 | 331 46 15 ·2 | 0 ·75 | 9 ·9953449 | 15 5 ·5 | 15 9 ·6 | 55 23 ·0 | 55 3 |
| 21 | 332 46 37 ·5 | 0 ·77 | 9 ·9954441 | 15 13 ·7 | 15 18 ·0 | 55 53 ·1 | 56 |
| 22 | 333 46 58 ·1 | 0 ·76 | 9 ·9955454 | 15 22 ·4 | 15 26 ·7 | 56 25 ·1 | 56 4 |
| 23 | 334 47 17 ·0 | 0 ·72 | 9 ·9956486 | 15 31 ·0 | 15 35 ·1 | 56 56 ·5 | 57 1 |
| 24 | 335 47 34 ·3 | 0 ·66 | 9 ·9957536 | 15 39 ·1 | 15 42 ·9 | 57 26 ·2 | 57 4 |
| 25 | 336 47 50 ·1 | 0 ·57 | 9 ·9958602 | 15 46 ·6 | 15 49 ·9 | 57 53 ·6 | 58 |
| 26 | 337 48 4 ·2 | 0 ·46 | 9 ·9959685 | 15 53 ·1 | 15 56 ·1 | 58 17 ·7 | 58 2 |
| 27 | 338 48 16 ·9 | 0 ·33 | 9 ·9960783 | 15 58 ·8 | 16 1 ·4 | 58 38 ·7 | 58 4 |
| 28 | 339 48 28 ·0 | 0 ·20 | 9 ·9961894 | 16 3 ·7 | 16 5 ·7 | 58 56 ·4 | 59 |
| 29 | 340 48 37 ·7 | S. 0 ·07 | 9 ·9963017 | 16 7 ·6 | 16 9 ·1 | 59 10 ·7 | 59 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| t. | 1 | 241 1 50·9 | 248 9 37·3 | S.0 5 48·1 | N.0 32 4·6 | 24·2 | 19 56·9 |
| n. | 2 | 255 20 54·5 | 262 35 24·8 | N.1 9 44·1 | 1 46 30·4 | 25·2 | 20 58·0 |
| on. | 3 | 269 52 42·9 | 277 12 15·0 | 2 21 43·9 | 2 54 45·6 | 26·2 | 21 58·8 |
| es. | 4 | 284 33 19·3 | 291 55 6·7 | 3 24 57·3 | 3 51 44·4 | 27·2 | 22 57·7 |
| ed. | 5 | 299 16 42·1 | 306 37 6·9 | 4 14 37·4 | 4 33 11·9 | 28·2 | 23 53·8 |
| ur. | 6 | 313 55 21·1 | 321 10 25·7 | 4 47 10·7 | 4 56 23·7 | 29·2 | ☌ |
| id. | 7 | 328 21 26·2 | 335 27 34·0 | 5 0 48·4 | 5 0 28·8 | 0·7 | 0 46·8 |
| t. | 8 | 342 28 8·9 | 349 22 40·4 | 4 55 36·0 | 4 46 25·5 | 1·7 | 1 37·2 |
| n. | 9 | 356 10 48·2 | 2 52 22·4 | 4 33 16·5 | 4 16 32·0 | 2·7 | 2 25·7 |
| on. | 10 | 9 27 23·3 | 15 56 0·1 | 3 56 36·0 | 3 33 53·2 | 3·7 | 3 12·9 |
| es. | 11 | 22 18 30·7 | 28 35 19·4 | 3 8 48·6 | 2 41 46·0 | 4·7 | 3 59·6 |
| ed. | 12 | 34 46 56·6 | 40 53 57·1 | 2 13 8·9 | 1 43 19·0 | 5·7 | 4 46·4 |
| ur. | 13 | 46 56 59·1 | 52 56 43·1 | 1 12 37·1 | N.0 41 22·8 | 6·7 | 5 33·6 |
| id. | 14 | 58 53 50·8 | 64 49 4·6 | N.0 9 54·5 | S.0 21 29·7 | 7·7 | 6 21·4 |
| t. | 15 | 70 43 6·7 | 76 36 38·7 | S.0 52 33·2 | 1 22 59·3 | 8·7 | 7 9·6 |
| n. | 16 | 82 30 20·3 | 88 24 49·9 | 1 52 31·4 | 2 20 52·9 | 9·7 | 7 58·0 |
| on. | 17 | 94 20 43·0 | 100 18 32·5 | 2 47 47·6 | 3 12 59·0 | 10·7 | 8 46·3 |
| es. | 18 | 106 18 47·5 | 112 21 53·8 | 3 36 10·3 | 3 57 5·2 | 11·7 | 9 34·1 |
| ed. | 19 | 118 28 12·5 | 124 38 0·6 | 4 15 26·2 | 4 30 58·1 | 12·7 | 10 21·2 |
| ur. | 20 | 130 51 30·2 | 137 8 48·4 | 4 43 25·0 | 4 52 32·7 | 13·7 | 11 7·7 |
| id. | 21 | 143 29 57·9 | 149 54 56·8 | 4 58 8·2 | 5 0 1·3 | 14·7 | 11 53·8 |
| t. | 22 | 156 23 39·3 | 162 55 55·9 | 4 58 3·8 | 4 52 10·8 | 15·7 | 12 39·9 |
| n. | 23 | 169 31 34·8 | 176 10 22·3 | 4 42 20·7 | 4 28 35·9 | 16·7 | 13 26·7 |
| on. | 24 | 182 52 3·8 | 189 36 24·5 | 4 11 2·3 | 3 49 50·6 | 17·7 | 14 14·8 |
| es. | 25 | 196 23 10·7 | 203 12 9·7 | 3 25 14·9 | 2 57 33·3 | 18·7 | 15 4·9 |
| ed. | 26 | 210 3 11·3 | 216 56 7·2 | 2 27 7·7 | 1 54 22·8 | 19·7 | 15 57·6 |
| ur. | 27 | 223 50 50·9 | 230 47 18·4 | 1 19 46·2 | S.0 43 48·4 | 20·7 | 16 52·9 |
| id. | 28 | 237 45 26·9 | 244 45 14·5 | S.0 7 1·1 | N.0 30 2·3 | 21·7 | 17 50·6 |
| t. | 29 | 251 46 38·9 | 258 49 37·1 | N.1 6 46·9 | N.1 42 38·2 | 22·7 | 18 49·6 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 55 28 ·43 | S. 20 28 34 ·9 | 41 ·58 |
| 1 | 15 57 59 ·63 | 20 32 44 ·4 | 40 ·23 |
| 2 | 16 0 31 ·08 | 20 36 45 ·8 | 38 ·90 |
| 3 | 16 3 2 ·77 | 20 40 39 ·2 | 37 ·53 |
| 4 | 16 5 34 ·69 | 20 44 24 ·4 | 36 ·17 |
| 5 | 16 8 6 ·85 | 20 48 1 ·4 | 34 ·80 |
| 6 | 16 10 39 ·23 | 20 51 30 ·2 | 33 ·43 |
| 7 | 16 13 11 ·83 | 20 54 50 ·8 | 32 ·03 |
| 8 | 16 15 44 ·65 | 20 58 3 ·0 | 30 ·63 |
| 9 | 16 18 17 ·68 | 21 1 6 ·8 | 29 ·22 |
| 10 | 16 20 50 ·92 | 21 4 2 ·1 | 27 ·82 |
| 11 | 16 23 24 ·36 | 21 6 49 ·0 | 26 ·40 |
| 12 | 16 25 58 ·00 | 21 9 27 ·4 | 24 ·97 |
| 13 | 16 28 31 ·83 | 21 11 57 ·2 | 23 ·53 |
| 14 | 16 31 5 ·85 | 21 14 18 ·4 | 22 ·08 |
| 15 | 16 33 40 ·04 | 21 16 30 ·9 | 20 ·63 |
| 16 | 16 36 14 ·41 | 21 18 34 ·7 | 19 ·18 |
| 17 | 16 38 48 ·95 | 21 20 29 ·8 | 17 ·73 |
| 18 | 16 41 23 ·65 | 21 22 16 ·2 | 16 ·25 |
| 19 | 16 43 58 ·51 | 21 23 53 ·7 | 14 ·80 |
| 20 | 16 46 33 ·52 | 21 25 22 ·5 | 13 ·32 |
| 21 | 16 49 8 ·68 | 21 26 42 ·4 | 11 ·83 |
| 22 | 16 51 43 ·97 | 21 27 53 ·4 | 10 ·35 |
| 23 | 16 54 19 ·40 | S. 21 28 55 ·5 | 8 ·85 |
| | *SUNDAY* 2. | | |
| 0 | 16 56 54 ·95 | S. 21 29 48 ·6 | 7 ·37 |
| 1 | 16 59 30 ·62 | 21 30 32 ·8 | 5 ·87 |
| 2 | 17 2 6 ·41 | 21 31 8 ·0 | 4 ·37 |
| 3 | 17 4 42 ·30 | 21 31 34 ·2 | 2 ·87 |
| 4 | 17 7 18 ·29 | 21 31 51 ·4 | 1 ·37 |
| 5 | 17 9 54 ·38 | 21 31 59 ·6 | 0 ·17 |
| 6 | 17 12 30 ·55 | 21 31 58 ·6 | 1 ·65 |
| 7 | 17 15 6 ·80 | 21 31 48 ·7 | 3 ·18 |
| 8 | 17 17 43 ·12 | 21 31 29 ·6 | 4 ·70 |
| 9 | 17 20 19 ·52 | 21 31 1 ·4 | 6 ·20 |
| 10 | 17 22 55 ·97 | 21 30 24 ·2 | 7 ·73 |
| 11 | 17 25 32 ·48 | 21 29 37 ·8 | 9 ·25 |
| 12 | 17 28 9 ·03 | 21 28 42 ·3 | 10 ·77 |
| 13 | 17 30 45 ·62 | 21 27 37 ·7 | 12 ·30 |
| 14 | 17 33 22 ·25 | 21 26 23 ·9 | 13 ·80 |
| 15 | 17 35 58 ·90 | 21 25 1 ·1 | 15 ·33 |
| 16 | 17 38 35 ·57 | 21 23 29 ·1 | 16 ·85 |
| 17 | 17 41 12 ·25 | 21 21 48 ·0 | 18 ·37 |
| 18 | 17 43 48 ·94 | 21 19 57 ·8 | 19 ·88 |
| 19 | 17 46 25 ·62 | 21 17 58 ·5 | 21 ·40 |
| 20 | 17 49 2 ·30 | 21 15 50 ·1 | 22 ·92 |
| 21 | 17 51 38 ·96 | 21 13 32 ·6 | 24 ·43 |
| 22 | 17 54 15 ·60 | 21 11 6 ·0 | 25 ·93 |
| 23 | 17 56 52 ·21 | 21 8 30 ·4 | 27 ·45 |
| 24 | 17 59 28 ·79 | S. 21 5 45 ·7 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *MONDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 17 59 28 ·79 | S. 21 5 45 ·7 |
| 1 | 18 2 5 ·32 | 21 2 52 ·0 |
| 2 | 18 4 41 ·80 | 20 59 49 ·3 |
| 3 | 18 7 18 ·23 | 20 56 37 ·6 |
| 4 | 18 9 54 ·59 | 20 53 17 ·0 |
| 5 | 18 12 30 ·88 | 20 49 47 ·4 |
| 6 | 18 15 7 ·10 | 20 46 9 ·0 |
| 7 | 18 17 43 ·23 | 20 42 21 ·7 |
| 8 | 18 20 19 ·27 | 20 38 25 ·5 |
| 9 | 18 22 55 ·22 | 20 34 20 ·6 |
| 10 | 18 25 31 ·06 | 20 30 6 ·9 |
| 11 | 18 28 6 ·80 | 20 25 44 ·4 |
| 12 | 18 30 42 ·42 | 20 21 13 ·3 |
| 13 | 18 33 17 ·92 | 20 16 33 ·5 |
| 14 | 18 35 53 ·30 | 20 11 45 ·2 |
| 15 | 18 38 28 ·54 | 20 6 48 ·2 |
| 16 | 18 41 3 ·64 | 20 1 42 ·8 |
| 17 | 18 43 38 ·60 | 19 56 28 ·9 |
| 18 | 18 46 13 ·41 | 19 51 6 ·6 |
| 19 | 18 48 48 ·06 | 19 45 35 ·9 |
| 20 | 18 51 22 ·55 | 19 39 57 ·0 |
| 21 | 18 53 56 ·87 | 19 34 9 ·7 |
| 22 | 18 56 31 ·03 | 19 28 14 ·3 |
| 23 | 18 59 5 ·01 | S. 19 22 10 ·7 |
| | *TUESDAY* 4. | |
| 0 | 19 1 38 ·80 | S. 19 15 59 ·1 |
| 1 | 19 4 12 ·41 | 19 9 39 ·4 |
| 2 | 19 6 45 ·82 | 19 3 11 ·8 |
| 3 | 19 9 19 ·04 | 18 56 36 ·3 |
| 4 | 19 11 52 ·06 | 18 49 52 ·9 |
| 5 | 19 14 24 ·87 | 18 43 1 ·8 |
| 6 | 19 16 57 ·47 | 18 36 3 ·0 |
| 7 | 19 19 29 ·85 | 18 28 56 ·5 |
| 8 | 19 22 2 ·02 | 18 21 42 ·5 |
| 9 | 19 24 33 ·96 | 18 14 21 ·0 |
| 10 | 19 27 5 ·68 | 18 6 52 ·1 |
| 11 | 19 29 37 ·17 | 17 59 15 ·8 |
| 12 | 19 32 8 ·42 | 17 51 32 ·3 |
| 13 | 19 34 39 ·43 | 17 43 41 ·6 |
| 14 | 19 37 10 ·20 | 17 35 43 ·7 |
| 15 | 19 39 40 ·73 | 17 27 38 ·8 |
| 16 | 19 42 11 ·01 | 17 19 27 ·0 |
| 17 | 19 44 41 ·03 | 17 11 8 ·3 |
| 18 | 19 47 10 ·81 | 17 2 42 ·7 |
| 19 | 19 49 40 ·32 | 16 54 10 ·5 |
| 20 | 19 52 9 ·58 | 16 45 31 ·6 |
| 21 | 19 54 38 ·57 | 16 36 46 ·2 |
| 22 | 19 57 7 ·30 | 16 27 54 ·3 |
| 23 | 19 59 35 ·77 | 16 18 56 ·1 |
| 24 | 20 2 3 ·96 | S. 16 9 51 ·5 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *WEDNESDAY* 5. | | | | *FRIDAY* 7. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 2 3·96 | S. 16 9 51·5 | 91·80 | 0 | 21 55 4·97 | S. 7 20 48·7 | 123·33 |
| 4 31·88 | 16 0 40·7 | 92·80 | 1 | 21 57 19·50 | 7 8 28·7 | 123·62 |
| 6 59·53 | 15 51 23·9 | 93·82 | 2 | 21 59 33·78 | 6 56 7·0 | 123·88 |
| 9 26·90 | 15 42 1·0 | 94·82 | 3 | 22 1 47·81 | 6 43 43·7 | 124·13 |
| 11 53·99 | 15 32 32·1 | 95·78 | 4 | 22 4 1·60 | 6 31 18·9 | 124·37 |
| 14 20·81 | 15 22 57·4 | 96·73 | 5 | 22 6 15·14 | 6 18 52·7 | 124·58 |
| 16 47·35 | 15 13 17·0 | 97·68 | 6 | 22 8 28·44 | 6 6 25·2 | 124·80 |
| 19 13·61 | 15 3 30·9 | 98·62 | 7 | 22 10 41·50 | 5 53 56·4 | 125·00 |
| 21 39·58 | 14 53 39·2 | 99·53 | 8 | 22 12 54·33 | 5 41 26·4 | 125·18 |
| 24 5·27 | 14 43 42·0 | 100·43 | 9 | 22 15 6·92 | 5 28 55·3 | 125·35 |
| 26 30·67 | 14 33 39·4 | 101·32 | 10 | 22 17 19·28 | 5 16 23·2 | 125·50 |
| 28 55·79 | 14 23 31·5 | 102·18 | 11 | 22 19 31·41 | 5 3 50·2 | 125·63 |
| 31 20·62 | 14 13 18·4 | 103·03 | 12 | 22 21 43·31 | 4 51 16·4 | 125·77 |
| 33 45·16 | 14 3 0·2 | 103·88 | 13 | 22 23 54·99 | 4 38 41·8 | 125·88 |
| 36 9·42 | 13 52 36·9 | 104·70 | 14 | 22 26 6·45 | 4 26 6·5 | 125·97 |
| 38 33·39 | 13 42 8·7 | 105·50 | 15 | 22 28 17·69 | 4 13 30·7 | 126·07 |
| 40 57·07 | 13 31 35·7 | 106·28 | 16 | 22 30 28·71 | 4 0 54·3 | 126·13 |
| 43 20·45 | 13 20 58·0 | 107·07 | 17 | 22 32 39·52 | 3 48 17·5 | 126·20 |
| 45 43·55 | 13 10 15·6 | 107·83 | 18 | 22 34 50·12 | 3 35 40·3 | 126·25 |
| 48 6·37 | 12 59 28·6 | 108·57 | 19 | 22 37 0·51 | 3 23 2·8 | 126·28 |
| 50 28·89 | 12 48 37·2 | 109·30 | 20 | 22 39 10·70 | 3 10 25·1 | 126·30 |
| 52 51·12 | 12 37 41·4 | 110·00 | 21 | 22 41 20·68 | 2 57 47·3 | 126·30 |
| 55 13·07 | 12 26 41·4 | 110·72 | 22 | 22 43 30·47 | 2 45 9·5 | 126·30 |
| 57 34·72 | S. 12 15 37·1 | 111·38 | 23 | 22 45 40·06 | S. 2 32 31·7 | 126·28 |
| *THURSDAY* 6. | | | | *SATURDAY* 8. | | |
| 59 56·09 | S. 12 4 28·8 | 112·05 | 0 | 22 47 49·45 | S. 2 19 54·0 | 126·25 |
| 2 17·17 | 11 53 16·5 | 112·70 | 1 | 22 49 58·65 | 2 7 16·5 | 126·22 |
| 4 37·96 | 11 42 0·3 | 113·33 | 2 | 22 52 7·67 | 1 54 39·2 | 126·17 |
| 6 58·47 | 11 30 40·3 | 113·95 | 3 | 22 54 16·50 | 1 42 2·2 | 126·08 |
| 9 18·69 | 11 19 16·6 | 114·55 | 4 | 22 56 25·15 | 1 29 25·7 | 126·02 |
| 11 38·62 | 11 7 49·3 | 115·13 | 5 | 22 58 33·62 | 1 16 49·6 | 125·93 |
| 13 58·27 | 10 56 18·5 | 115·70 | 6 | 23 0 41·91 | 1 4 14·0 | 125·82 |
| 16 17·64 | 10 44 44·3 | 116·27 | 7 | 23 2 50·03 | 0 51 39·1 | 125·72 |
| 18 36·73 | 10 33 6·7 | 116·80 | 8 | 23 4 57·98 | 0 39 4·8 | 125·58 |
| 20 55·53 | 10 21 25·9 | 117·32 | 9 | 23 7 5·76 | 0 26 31·3 | 125·45 |
| 23 14·06 | 10 9 42·0 | 117·83 | 10 | 23 9 13·37 | 0 13 58·6 | 125·30 |
| 25 32·31 | 9 57 55·0 | 118·33 | 11 | 23 11 20·83 | S. 0 1 26·8 | 125·13 |
| 27 50·28 | 9 46 5·0 | 118·80 | 12 | 23 13 28·12 | N. 0 11 4·0 | 124·97 |
| 30 7·98 | 9 34 12·2 | 119·27 | 13 | 23 15 35·26 | 0 23 33·8 | 124·78 |
| 32 25·40 | 9 22 16·6 | 119·72 | 14 | 23 17 42·25 | 0 36 2·5 | 124·60 |
| 34 42·56 | 9 10 18·3 | 120·13 | 15 | 23 19 49·09 | 0 48 30·1 | 124·38 |
| 36 59·44 | 8 58 17·5 | 120·55 | 16 | 23 21 55·78 | 1 0 56·4 | 124·18 |
| 39 16·05 | 8 46 14·2 | 120·97 | 17 | 23 24 2·33 | 1 13 21·5 | 123·95 |
| 41 32·40 | 8 34 8·4 | 121·33 | 18 | 23 26 8·74 | 1 25 45·2 | 123·72 |
| 43 48·48 | 8 22 0·4 | 121·72 | 19 | 23 28 15·01 | 1 38 7·5 | 123·48 |
| 46 4·29 | 8 9 50·1 | 122·07 | 20 | 23 30 21·14 | 1 50 28·4 | 123·22 |
| 48 19·85 | 7 57 37·7 | 122·40 | 21 | 23 32 27·14 | 2 2 47·7 | 122·95 |
| 50 35·15 | 7 45 23·3 | 122·72 | 22 | 23 34 33·01 | 2 15 5·4 | 122·68 |
| 52 50·19 | 7 33 7·0 | 123·05 | 23 | 23 36 38·76 | 2 27 21·5 | 122·40 |
| 55 4·97 | S. 7 20 48·7 | | 24 | 23 38 44·38 | N. 2 39 35·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *SUNDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 38 44 ·38 | N. 2 39 35 ·9 | 122 ·10 |
| 1 | 23 40 49 ·88 | 2 51 48 ·5 | 121 ·80 |
| 2 | 23 42 55 ·26 | 3 3 59 ·3 | 121 ·48 |
| 3 | 23 45 0 ·53 | 3 16 8 ·2 | 121 ·17 |
| 4 | 23 47 5 ·69 | 3 28 15 ·2 | 120 ·82 |
| 5 | 23 49 10 ·74 | 3 40 20 ·1 | 120 ·50 |
| 6 | 23 51 15 ·68 | 3 52 23 ·1 | 120 ·13 |
| 7 | 23 53 20 ·52 | 4 4 23 ·9 | 119 ·77 |
| 8 | 23 55 25 ·26 | 4 16 22 ·5 | 119 ·40 |
| 9 | 23 57 29 90 | 4 28 18 ·9 | 119 ·03 |
| 10 | 23 59 34 ·44 | 4 40 13 ·1 | 118 ·63 |
| 11 | 0 1 38 ·90 | 4 52 4 ·9 | 118 ·25 |
| 12 | 0 3 43 ·26 | 5 3 54 ·4 | 117 ·83 |
| 13 | 0 5 47 ·54 | 5 15 41 ·4 | 117 ·43 |
| 14 | 0 7 51 ·73 | 5 27 26 ·0 | 117 ·00 |
| 15 | 0 9 55 ·85 | 5 39 8 ·0 | 116 ·57 |
| 16 | 0 11 59 ·88 | 5 50 47 ·4 | 116 ·13 |
| 17 | 0 14 3 ·84 | 6 2 24 ·2 | 115 ·70 |
| 18 | 0 16 7 ·73 | 6 13 58 ·4 | 115 ·23 |
| 19 | 0 18 11 ·55 | 6 25 29 ·8 | 114 ·77 |
| 20 | 0 20 15 ·30 | 6 36 58 ·4 | 114 ·30 |
| 21 | 0 22 18 ·98 | 6 48 24 ·2 | 113 ·82 |
| 22 | 0 24 22 ·61 | 6 59 47 ·1 | 113 ·33 |
| 23 | 0 26 26 ·17 | N. 7 11 7 ·1 | 112 ·85 |
| | *MONDAY* 10. | | |
| 0 | 0 28 29 ·68 | N. 7 22 24 ·2 | 112 ·33 |
| 1 | 0 30 33 ·13 | 7 33 38 ·2 | 111 ·83 |
| 2 | 0 32 36 ·53 | 7 44 49 ·2 | 111 ·32 |
| 3 | 0 34 39 ·89 | 7 55 57 ·1 | 110 ·80 |
| 4 | 0 36 43 ·19 | 8 7 1 ·9 | 110 ·25 |
| 5 | 0 38 46 ·45 | 8 18 3 ·4 | 109 ·73 |
| 6 | 0 40 49 ·67 | 8 29 1 ·8 | 109 ·17 |
| 7 | 0 42 52 ·85 | 8 39 56 ·8 | 108 ·63 |
| 8 | 0 44 55 ·99 | 8 50 48 ·6 | 108 ·07 |
| 9 | 0 46 59 ·10 | 9 1 37 ·0 | 107 ·50 |
| 10 | 0 49 2 ·18 | 9 12 22 ·0 | 106 ·93 |
| 11 | 0 51 5 ·22 | 9 23 3 ·6 | 106 ·35 |
| 12 | 0 53 8 ·24 | 9 33 41 ·7 | 105 ·77 |
| 13 | 0 55 11 ·23 | 9 44 16 ·3 | 105 ·17 |
| 14 | 0 57 14 ·20 | 9 54 47 ·3 | 104 ·58 |
| 15 | 0 59 17 ·15 | 10 5 14 ·8 | 103 ·97 |
| 16 | 1 1 20 ·08 | 10 15 38 ·6 | 103 ·37 |
| 17 | 1 3 22 ·99 | 10 25 58 ·8 | 102 ·73 |
| 18 | 1 5 25 ·89 | 10 36 15 ·2 | 102 ·12 |
| 19 | 1 7 28 ·78 | 10 46 27 ·9 | 101 ·48 |
| 20 | 1 9 31 ·65 | 10 56 36 ·8 | 100 ·85 |
| 21 | 1 11 34 ·52 | 11 6 41 ·9 | 100 ·22 |
| 22 | 1 13 37 ·39 | 11 16 43 ·2 | 99 ·57 |
| 23 | 1 15 40 ·24 | 11 26 40 ·6 | 98 ·90 |
| 24 | 1 17 43 ·10 | N. 11 36 34 ·0 | * |

| Hour. | Right Ascension. | Declination. | Diff. for |
|---|---|---|---|
| | *TUESDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 17 43 ·10 | N. 11 36 34 ·0 | 98 |
| 1 | 1 19 45 ·96 | 11 46 23 ·5 | 97 |
| 2 | 1 21 48 ·81 | 11 56 8 ·9 | 96 |
| 3 | 1 23 51 ·67 | 12 5 50 ·4 | 96 |
| 4 | 1 25 54 ·54 | 12 15 27 ·8 | 95 |
| 5 | 1 27 57 ·41 | 12 25 1 ·1 | 94 |
| 6 | 1 30 0 ·30 | 12 34 30 ·2 | 94 |
| 7 | 1 32 3 ·19 | 12 43 55 ·2 | 93 |
| 8 | 1 34 6 ·10 | 12 53 16 ·0 | 92 |
| 9 | 1 36 9 ·02 | 13 2 32 ·6 | 92 |
| 10 | 1 38 11 ·95 | 13 11 44 ·9 | 91 |
| 11 | 1 40 14 ·91 | 13 20 53 ·0 | 90 |
| 12 | 1 42 17 ·88 | 13 29 56 ·7 | 89 |
| 13 | 1 44 20 ·87 | 13 38 56 ·1 | 89 |
| 14 | 1 46 23 ·89 | 13 47 51 ·1 | 88 |
| 15 | 1 48 26 ·93 | 13 56 41 ·7 | 87 |
| 16 | 1 50 30 ·00 | 14 5 27 ·8 | 86 |
| 17 | 1 52 33 ·09 | 14 14 9 ·5 | 86 |
| 18 | 1 54 36 ·21 | 14 22 46 ·7 | 85 |
| 19 | 1 56 39 ·36 | 14 31 19 ·4 | 84 |
| 20 | 1 58 42 ·54 | 14 39 47 ·5 | 83 |
| 21 | 2 0 45 ·75 | 14 48 11 ·0 | 83 |
| 22 | 2 2 48 ·99 | 14 56 29 ·9 | 82 |
| 23 | 2 4 52 ·27 | N. 15 4 44 ·2 | 81 |
| | *WEDNESDAY* 12. | | |
| 0 | 2 6 55 ·59 | N. 15 12 53 ·8 | 80 |
| 1 | 2 8 58 ·94 | 15 20 58 ·7 | 80 |
| 2 | 2 11 2 ·34 | 15 28 58 ·9 | 79 |
| 3 | 2 13 5 ·77 | 15 36 54 ·4 | 78 |
| 4 | 2 15 9 ·24 | 15 44 45 ·1 | 77 |
| 5 | 2 17 12 ·75 | 15 52 31 ·0 | 76 |
| 6 | 2 19 16 ·31 | 16 0 12 ·1 | 76 |
| 7 | 2 21 19 ·90 | 16 7 48 ·3 | 75 |
| 8 | 2 23 23 ·54 | 16 15 19 ·6 | 74 |
| 9 | 2 25 27 ·23 | 16 22 46 ·1 | 73 |
| 10 | 2 27 30 ·96 | 16 30 7 ·6 | 72 |
| 11 | 2 29 34 ·73 | 16 37 24 ·2 | 71 |
| 12 | 2 31 38 ·56 | 16 44 35 ·8 | 71 |
| 13 | 2 33 42 ·43 | 16 51 42 ·4 | 70 |
| 14 | 2 35 46 ·36 | 16 58 44 ·0 | 69 |
| 15 | 2 37 50 ·33 | 17 5 40 ·6 | 68 |
| 16 | 2 39 54 ·35 | 17 12 32 ·1 | 67 |
| 17 | 2 41 58 ·42 | 17 19 18 ·5 | 66 |
| 18 | 2 44 2 ·55 | 17 25 59 ·8 | 66 |
| 19 | 2 46 6 ·73 | 17 32 35 ·9 | 65 |
| 20 | 2 48 10 ·96 | 17 39 6 ·9 | 64 |
| 21 | 2 50 15 ·24 | 17 45 32 ·8 | 63 |
| 22 | 2 52 19 ·57 | 17 51 53 ·5 | 62 |
| 23 | 2 54 23 ·96 | 17 58 8 ·9 | 61 |
| 24 | 2 56 28 ·40 | N. 18 4 19 ·1 | |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|
| *THURSDAY* 13. | | | | *SATURDAY* 15. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 5 28 ·40 | N.18 4 19 ·1 | 60 ·83 | 0 | 4 37 2 ·13 | N.21 12 13 ·4 | 15 ·65 |
| 32 ·90 | 18 10 24 ·1 | 59 ·93 | 1 | 4 39 8 ·87 | 21 13 47 ·3 | 14 ·67 |
| 37 ·45 | 18 16 23 ·7 | 59 ·07 | 2 | 4 41 15 ·64 | 21 15 15 ·3 | 13 ·68 |
| 42 ·05 | 18 22 18 ·1 | 58 ·18 | 3 | 4 43 22 ·43 | 21 16 37 ·4 | 12 ·68 |
| 46 ·71 | 18 28 7 ·2 | 57 ·30 | 4 | 4 45 29 ·25 | 21 17 53 ·5 | 11 ·70 |
| 51 ·42 | 18 33 51 ·0 | 56 ·38 | 5 | 4 47 36 ·09 | 21 19 3 ·7 | 10 ·72 |
| 56 ·19 | 18 39 29 ·3 | 55 ·52 | 6 | 4 49 42 ·95 | 21 20 8 ·0 | 9 ·72 |
| 1 ·01 | 18 45 2 ·4 | 54 ·60 | 7 | 4 51 49 ·83 | 21 21 6 ·3 | 8 ·73 |
| 5 ·89 | 18 50 30 ·0 | 53 ·70 | 8 | 4 53 56 ·73 | 21 21 58 ·7 | 7 ·73 |
| 10 ·83 | 18 55 52 ·2 | 52 ·80 | 9 | 4 56 3 ·65 | 21 22 45 ·1 | 6 ·75 |
| 15 ·82 | 19 1 9 ·0 | 51 ·88 | 10 | 4 58 10 ·59 | 21 23 25 ·6 | 5 ·75 |
| 20 ·86 | 19 6 20 ·3 | 50 ·98 | 11 | 5 0 17 ·54 | 21 24 0 ·1 | 4 ·75 |
| 25 ·96 | 19 11 26 ·2 | 50 ·07 | 12 | 5 2 24 ·51 | 21 24 28 ·6 | 3 ·77 |
| 31 ·11 | 19 16 26 ·6 | 49 ·15 | 13 | 5 4 31 ·49 | 21 24 51 ·2 | 2 ·77 |
| 36 ·32 | 19 21 21 ·5 | 48 ·22 | 14 | 5 6 38 ·48 | 21 25 7 ·8 | 1 ·77 |
| 41 ·58 | 19 26 10 ·8 | 47 ·32 | 15 | 5 8 45 ·48 | 21 25 18 ·4 | 0 ·77 |
| 46 ·90 | 19 30 54 ·7 | 46 ·38 | 16 | 5 10 52 ·49 | 21 25 23 ·0 | 0 ·22 |
| 52 ·27 | 19 35 33 ·0 | 45 ·45 | 17 | 5 12 59 ·51 | 21 25 21 ·7 | 1 ·22 |
| 57 ·69 | 19 40 5 ·7 | 44 ·53 | 18 | 5 15 6 ·53 | 21 25 14 ·4 | 2 ·22 |
| 3 ·16 | 19 44 32 ·9 | 43 ·58 | 19 | 5 17 13 ·55 | 21 25 1 ·1 | 3 ·20 |
| 8 ·69 | 19 48 54 ·4 | 42 ·67 | 20 | 5 19 20 ·58 | 21 24 41 ·9 | 4 ·20 |
| 14 ·27 | 19 53 10 ·4 | 41 ·72 | 21 | 5 21 27 ·61 | 21 24 16 ·7 | 5 ·20 |
| 19 ·90 | 19 57 20 ·7 | 40 ·78 | 22 | 5 23 34 ·64 | 21 23 45 ·5 | 6 ·20 |
| 25 ·58 | N.20 1 25 ·4 | 39 ·83 | 23 | 5 25 41 ·67 | N.21 23 8 ·3 | 7 ·18 |
| *FRIDAY* 14. | | | | *SUNDAY* 16. | | |
| 31 ·31 | N.20 5 24 ·4 | 38 ·90 | 0 | 5 27 48 ·70 | N.21 22 25 ·2 | 8 ·18 |
| 37 ·09 | 20 9 17 ·8 | 37 ·95 | 1 | 5 29 55 ·73 | 21 21 36 ·1 | 9 ·17 |
| 42 ·92 | 20 13 5 ·5 | 37 ·00 | 2 | 5 32 2 ·74 | 21 20 41 ·1 | 10 ·17 |
| 48 ·80 | 20 16 47 ·5 | 36 ·05 | 3 | 5 34 9 ·75 | 21 19 40 ·1 | 11 ·17 |
| 54 ·73 | 20 20 23 ·8 | 35 ·08 | 4 | 5 36 16 ·76 | 21 18 33 ·1 | 12 ·15 |
| 0 ·71 | 20 23 54 ·3 | 34 ·15 | 5 | 5 38 23 ·75 | 21 17 20 ·2 | 13 ·15 |
| 6 ·73 | 20 27 19 ·2 | 33 ·18 | 6 | 5 40 30 ·73 | 21 16 1 ·3 | 14 ·13 |
| 12 ·79 | 20 30 38 ·3 | 32 ·22 | 7 | 5 42 37 ·70 | 21 14 36 ·5 | 15 ·13 |
| 18 ·90 | 20 33 51 ·6 | 31 ·27 | 8 | 5 44 44 ·65 | 21 13 5 ·7 | 16 ·12 |
| 25 ·06 | 20 36 59 ·2 | 30 ·30 | 9 | 5 46 51 ·59 | 21 11 29 ·0 | 17 ·10 |
| 31 ·26 | 20 40 1 ·0 | 29 ·33 | 10 | 5 48 58 ·51 | 21 9 46 ·4 | 18 ·10 |
| 37 ·50 | 20 42 57 ·0 | 28 ·37 | 11 | 5 51 5 ·42 | 21 7 57 ·8 | 19 ·08 |
| 43 ·79 | 20 45 47 ·2 | 27 ·40 | 12 | 5 53 12 ·30 | 21 6 3 ·3 | 20 ·07 |
| 50 ·12 | 20 48 31 ·6 | 26 ·42 | 13 | 5 55 19 ·16 | 21 4 2 ·9 | 21 ·05 |
| 56 ·48 | 20 51 10 ·1 | 25 ·47 | 14 | 5 57 26 ·00 | 21 1 56 ·6 | 22 ·03 |
| 2 ·89 | 20 53 42 ·9 | 24 ·47 | 15 | 5 59 32 ·82 | 20 59 44 ·4 | 23 ·02 |
| 9 ·33 | 20 56 9 ·7 | 23 ·52 | 16 | 6 1 39 ·61 | 20 57 26 ·3 | 24 ·00 |
| 15 ·81 | 20 58 30 ·8 | 22 ·52 | 17 | 6 3 46 ·37 | 20 55 2 ·3 | 24 ·98 |
| 22 ·33 | 21 0 45 ·9 | 21 ·55 | 18 | 6 5 53 ·11 | 20 52 32 ·4 | 25 ·95 |
| 28 ·88 | 21 2 55 ·2 | 20 ·57 | 19 | 6 7 59 ·81 | 20 49 56 ·7 | 26 ·93 |
| 35 ·46 | 21 4 58 ·6 | 19 ·60 | 20 | 6 10 6 ·49 | 20 47 15 ·1 | 27 ·90 |
| 42 ·09 | 21 6 56 ·2 | 18 ·60 | 21 | 6 12 13 ·13 | 20 44 27 ·7 | 28 ·88 |
| 48 ·74 | 21 8 47 ·8 | 17 ·63 | 22 | 6 14 19 ·74 | 20 41 34 ·4 | 29 ·85 |
| 55 ·42 | 21 10 33 ·6 | 16 ·63 | 23 | 6 16 26 ·32 | 20 38 35 ·3 | 30 ·82 |
| 2 ·13 | N.21 12 13 ·4 | | 24 | 6 18 32 ·86 | N.20 35 30 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATIO

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 18 32 ·86 | N.20 35 30 ·4 | 31 ·78 |
| 1 | 6 20 39 ·37 | 20 32 19 ·7 | 32 ·77 |
| 2 | 6 22 45 ·83 | 20 29 3 ·1 | 33 ·72 |
| 3 | 6 24 52 ·26 | 20 25 40 ·8 | 34 ·67 |
| 4 | 6 26 58 ·64 | 20 22 12 ·8 | 35 ·65 |
| 5 | 6 29 4 ·99 | 20 18 38 ·9 | 36 ·60 |
| 6 | 6 31 11 ·29 | 20 14 59 ·3 | 37 ·55 |
| 7 | 6 33 17 ·55 | 20 11 14 ·0 | 38 ·50 |
| 8 | 6 35 23 ·76 | 20 7 23 ·0 | 39 ·45 |
| 9 | 6 37 29 ·93 | 20 3 26 ·3 | 40 ·40 |
| 10 | 6 39 36 ·05 | 19 59 23 ·9 | 41 ·35 |
| 11 | 6 41 42 ·13 | 19 55 15 ·8 | 42 ·28 |
| 12 | 6 43 48 ·15 | 19 51 2 ·1 | 43 ·23 |
| 13 | 6 45 54 ·12 | 19 46 42 ·7 | 44 ·15 |
| 14 | 6 48 0 ·04 | 19 42 17 ·8 | 45 ·10 |
| 15 | 6 50 5 ·91 | 19 37 47 ·2 | 46 ·03 |
| 16 | 6 52 11 ·72 | 19 33 11 ·0 | 46 ·95 |
| 17 | 6 54 17 ·48 | 19 28 29 ·3 | 47 ·88 |
| 18 | 6 56 23 ·19 | 19 23 42 ·0 | 48 ·82 |
| 19 | 6 58 28 ·84 | 19 18 49 ·1 | 49 ·72 |
| 20 | 7 0 34 ·43 | 19 13 50 ·8 | 50 ·65 |
| 21 | 7 2 39 ·97 | 19 8 46 ·9 | 51 ·55 |
| 22 | 7 4 45 ·45 | 19 3 37 ·6 | 52 ·47 |
| 23 | 7 6 50 ·87 | N.18 58 22 ·8 | 53 ·38 |
| | *TUESDAY* 18. | | |
| 0 | 7 8 56 ·23 | N.18 53 2 ·5 | 54 ·28 |
| 1 | 7 11 1 ·53 | 18 47 36 ·8 | 55 ·18 |
| 2 | 7 13 6 ·77 | 18 42 5 ·7 | 56 ·07 |
| 3 | 7 15 11 ·95 | 18 36 29 ·3 | 56 ·98 |
| 4 | 7 17 17 ·06 | 18 30 47 ·4 | 57 ·85 |
| 5 | 7 19 22 ·12 | 18 25 0 ·3 | 58 ·75 |
| 6 | 7 21 27 ·11 | 18 19 7 ·8 | 59 ·62 |
| 7 | 7 23 32 ·04 | 18 13 10 ·1 | 60 ·50 |
| 8 | 7 25 36 ·91 | 18 7 7 ·1 | 61 ·37 |
| 9 | 7 27 41 ·71 | 18 0 58 ·9 | 62 ·25 |
| 10 | 7 29 46 ·45 | 17 54 45 ·4 | 63 ·10 |
| 11 | 7 31 51 ·12 | 17 48 26 ·8 | 63 ·97 |
| 12 | 7 33 55 ·73 | 17 42 3 ·0 | 64 ·82 |
| 13 | 7 36 0 ·27 | 17 35 34 ·1 | 65 ·67 |
| 14 | 7 38 4 ·75 | 17 29 0 ·1 | 66 ·52 |
| 15 | 7 40 9 ·16 | 17 22 21 ·0 | 67 ·37 |
| 16 | 7 42 13 ·50 | 17 15 36 ·8 | 68 ·20 |
| 17 | 7 44 17 ·78 | 17 8 47 ·6 | 69 ·03 |
| 18 | 7 46 21 ·99 | 17 1 53 ·4 | 69 ·85 |
| 19 | 7 48 26 ·14 | 16 54 54 ·3 | 70 ·70 |
| 20 | 7 50 30 ·22 | 16 47 50 ·1 | 71 ·50 |
| 21 | 7 52 34 ·23 | 16 40 41 ·1 | 72 ·32 |
| 22 | 7 54 38 ·18 | 16 33 27 ·2 | 73 ·15 |
| 23 | 7 56 42 ·06 | 16 26 8 ·3 | 73 ·93 |
| 24 | 7 58 45 ·88 | N.16 18 44 ·7 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *WEDNESDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 7 58 45 ·88 | N.16 18 44 |
| 1 | 8 0 49 ·63 | 16 11 16 |
| 2 | 8 2 53 ·31 | 16 3 43 |
| 3 | 8 4 56 ·93 | 15 56 5 |
| 4 | 8 7 0 ·48 | 15 48 22 |
| 5 | 8 9 3 ·97 | 15 40 34 |
| 6 | 8 11 7 ·39 | 15 32 42 |
| 7 | 8 13 10 ·75 | 15 24 46 |
| 8 | 8 15 14 ·04 | 15 16 44 |
| 9 | 8 17 17 ·27 | 15 8 38 |
| 10 | 8 19 20 ·44 | 15 0 28 |
| 11 | 8 21 23 ·55 | 14 52 13 |
| 12 | 8 23 26 ·59 | 14 43 54 |
| 13 | 8 25 29 ·57 | 14 35 30 |
| 14 | 8 27 32 ·49 | 14 27 2 |
| 15 | 8 29 35 ·35 | 14 18 30 |
| 16 | 8 31 38 ·15 | 14 9 53 |
| 17 | 8 33 40 ·90 | 14 1 12 |
| 18 | 8 35 43 ·58 | 13 52 26 |
| 19 | 8 37 46 ·21 | 13 43 37 |
| 20 | 8 39 48 ·78 | 13 34 43 |
| 21 | 8 41 51 ·29 | 13 25 45 |
| 22 | 8 43 53 ·75 | 13 16 43 |
| 23 | 8 45 56 ·16 | N.13 7 37 |
| | *THURSDAY* 20. | |
| 0 | 8 47 58 ·51 | N.12 58 27 |
| 1 | 8 50 0 ·81 | 12 49 13 |
| 2 | 8 52 3 ·06 | 12 39 55 |
| 3 | 8 54 5 ·26 | 12 30 33 |
| 4 | 8 56 7 ·41 | 12 21 8 |
| 5 | 8 58 9 ·51 | 12 11 38 |
| 6 | 9 0 11 ·57 | 12 2 4 |
| 7 | 9 2 13 ·58 | 11 52 27 |
| 8 | 9 4 15 ·55 | 11 42 46 |
| 9 | 9 6 17 ·48 | 11 33 2 |
| 10 | 9 8 19 ·36 | 11 23 14 |
| 11 | 9 10 21 ·20 | 11 13 22 |
| 12 | 9 12 23 ·00 | 11 3 27 |
| 13 | 9 14 24 ·76 | 10 53 28 |
| 14 | 9 16 26 ·49 | 10 43 26 |
| 15 | 9 18 28 ·19 | 10 33 20 |
| 16 | 9 20 29 ·85 | 10 23 11 |
| 17 | 9 22 31 ·47 | 10 12 58 |
| 18 | 9 24 33 ·07 | 10 2 43 |
| 19 | 9 26 34 ·64 | 9 52 24 |
| 20 | 9 28 36 ·19 | 9 42 1 |
| 21 | 9 30 37 ·70 | 9 31 36 |
| 22 | 9 32 39 ·20 | 9 21 8 |
| 23 | 9 34 40 ·67 | 9 10 36 |
| 24 | 9 36 42 ·12 | N. 9 0 2 |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *FRIDAY* 21. | | | | *SUNDAY* 23. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 6 42 ·12 | N.9 0 2 ·1 | 106 ·25 | 0 | 11 14 7 ·18 | S.0 10 47 ·1 | 120 ·13 |
| 8 43 ·55 | 8 49 24 ·6 | 106 ·75 | 1 | 11 16 10 ·21 | 0 22 47 ·9 | 120 ·20 |
| 0 44 ·96 | 8 38 44 ·1 | 107 ·22 | 2 | 11 18 13 ·33 | 0 34 49 ·1 | 120 ·25 |
| 2 46 ·36 | 8 28 0 ·8 | 107 ·70 | 3 | 11 20 16 ·55 | 0 46 50 ·6 | 120 ·30 |
| 4 47 ·75 | 8 17 14 ·6 | 108 ·17 | 4 | 11 22 19 ·86 | 0 58 52 ·4 | 120 ·33 |
| 6 49 ·12 | 8 6 25 ·6 | 108 ·62 | 5 | 11 24 23 ·28 | 1 10 54 ·4 | 120 ·35 |
| 8 50 ·48 | 7 55 33 ·9 | 109 ·08 | 6 | 11 26 26 ·80 | 1 22 56 ·5 | 120 ·35 |
| 0 51 ·84 | 7 44 39 ·4 | 109 ·50 | 7 | 11 28 30 ·42 | 1 34 58 ·6 | 120 ·37 |
| 2 53 ·19 | 7 33 42 ·4 | 109 ·95 | 8 | 11 30 34 ·16 | 1 47 0 ·8 | 120 ·35 |
| 4 54 ·54 | 7 22 42 ·7 | 110 ·38 | 9 | 11 32 38 ·01 | 1 59 2 ·9 | 120 ·33 |
| 6 55 ·89 | 7 11 40 ·4 | 110 ·78 | 10 | 11 34 41 ·97 | 2 11 4 ·9 | 120 ·30 |
| 8 57 ·23 | 7 0 35 ·7 | 111 ·20 | 11 | 11 36 46 ·04 | 2 23 6 ·7 | 120 ·25 |
| 0 58 ·58 | 6 49 28 ·5 | 111 ·60 | 12 | 11 38 50 ·24 | 2 35 8 ·2 | 120 ·20 |
| 2 59 ·93 | 6 38 18 ·9 | 112 ·00 | 13 | 11 40 54 ·56 | 2 47 9 ·4 | 120 ·15 |
| 5 1 ·29 | 6 27 6 ·9 | 112 ·37 | 14 | 11 42 59 ·01 | 2 59 10 ·3 | 120 ·07 |
| 7 2 ·65 | 6 15 52 ·7 | 112 ·75 | 15 | 11 45 3 ·58 | 3 11 10 ·7 | 120 ·00 |
| 9 4 ·02 | 6 4 36 ·2 | 113 ·13 | 16 | 11 47 8 ·28 | 3 23 10 ·7 | 119 ·90 |
| 1 5 ·41 | 5 53 17 ·4 | 113 ·48 | 17 | 11 49 13 ·12 | 3 35 10 ·1 | 119 ·78 |
| 3 6 ·81 | 5 41 56 ·5 | 113 ·82 | 18 | 11 51 18 ·09 | 3 47 8 ·8 | 119 ·68 |
| 5 8 ·23 | 5 30 33 ·6 | 114 ·18 | 19 | 11 53 23 ·20 | 3 59 6 ·9 | 119 ·55 |
| 7 9 ·67 | 5 19 8 ·5 | 114 ·50 | 20 | 11 55 28 ·46 | 4 11 4 ·2 | 119 ·42 |
| 9 11 ·13 | 5 7 41 ·5 | 114 ·83 | 21 | 11 57 33 ·85 | 4 23 0 ·7 | 119 ·28 |
| 1 12 ·62 | 4 56 12 ·5 | 115 ·15 | 22 | 11 59 39 ·39 | 4 34 56 ·4 | 119 ·10 |
| 3 14 ·13 | N.4 44 41 ·6 | 115 ·45 | 23 | 12 1 45 ·09 | S.4 46 51 ·0 | 118 ·95 |
| *SATURDAY* 22. | | | | *MONDAY* 24. | | |
| 5 15 ·66 | N.4 33 8 ·9 | 115 ·75 | 0 | 12 3 50 ·93 | S.4 58 44 ·7 | 118 ·77 |
| 7 17 ·23 | 4 21 34 ·4 | 116 ·05 | 1 | 12 5 56 ·93 | 5 10 37 ·3 | 118 ·57 |
| 9 18 ·83 | 4 9 58 ·1 | 116 ·32 | 2 | 12 8 3 ·08 | 5 22 28 ·7 | 118 ·38 |
| 1 20 ·46 | 3 58 20 ·2 | 116 ·60 | 3 | 12 10 9 ·39 | 5 34 19 ·0 | 118 ·17 |
| 3 22 ·13 | 3 46 40 ·6 | 116 ·85 | 4 | 12 12 15 ·86 | 5 46 8 ·0 | 117 ·93 |
| 5 23 ·84 | 3 34 59 ·5 | 117 ·10 | 5 | 12 14 22 ·50 | 5 57 55 ·6 | 117 ·70 |
| 7 25 ·60 | 3 23 16 ·9 | 117 ·37 | 6 | 12 16 29 ·31 | 6 9 41 ·8 | 117 ·45 |
| 9 27 ·39 | 3 11 32 ·7 | 117 ·58 | 7 | 12 18 36 ·28 | 6 21 26 ·5 | 117 ·20 |
| 1 29 ·24 | 2 59 47 ·2 | 117 ·82 | 8 | 12 20 43 ·43 | 6 33 9 ·7 | 116 ·93 |
| 3 31 ·13 | 2 48 0 ·3 | 118 ·03 | 9 | 12 22 50 ·76 | 6 44 51 ·3 | 116 ·65 |
| 5 33 ·08 | 2 36 12 ·1 | 118 ·23 | 10 | 12 24 58 ·26 | 6 56 31 ·2 | 116 ·37 |
| 7 35 ·08 | 2 24 22 ·7 | 118 ·43 | 11 | 12 27 5 ·94 | 7 8 9 ·4 | 116 ·05 |
| 9 37 ·14 | 2 12 32 ·1 | 118 ·62 | 12 | 12 29 13 ·80 | 7 19 45 ·7 | 115 ·75 |
| 1 39 ·26 | 2 0 40 ·4 | 118 ·82 | 13 | 12 31 21 ·85 | 7 31 20 ·2 | 115 ·42 |
| 3 41 ·43 | 1 48 47 ·5 | 118 ·97 | 14 | 12 33 30 ·09 | 7 42 52 ·7 | 115 ·07 |
| 5 43 ·68 | 1 36 53 ·7 | 119 ·13 | 15 | 12 35 38 ·51 | 7 54 23 ·1 | 114 ·73 |
| 7 45 ·99 | 1 24 58 ·9 | 119 ·28 | 16 | 12 37 47 ·13 | 8 5 51 ·5 | 114 ·38 |
| 9 48 ·37 | 1 13 3 ·2 | 119 ·42 | 17 | 12 39 55 ·94 | 8 17 17 ·8 | 114 ·00 |
| 1 50 ·82 | 1 1 6 ·7 | 119 ·57 | 18 | 12 42 4 ·95 | 8 28 41 ·8 | 113 ·62 |
| 3 53 ·34 | 0 49 9 ·3 | 119 ·67 | 19 | 12 44 14 ·16 | 8 40 3 ·5 | 113 ·22 |
| 5 55 ·95 | 0 37 11 ·3 | 119 ·80 | 20 | 12 46 23 ·57 | 8 51 22 ·8 | 112 ·82 |
| 7 58 ·63 | 0 25 12 ·5 | 119 ·88 | 21 | 12 48 33 ·18 | 9 2 39 ·7 | 112 ·40 |
| 0 1 ·39 | 0 13 13 ·2 | 119 ·98 | 22 | 12 50 43 ·00 | 9 13 54 ·1 | 111 ·97 |
| 2 4 ·24 | N.0 1 13 ·3 | 120 ·07 | 23 | 12 52 53 ·02 | 9 25 5 ·9 | 111 ·53 |
| 4 7 ·18 | S.0 10 47 ·1 | | 24 | 12 55 3 ·26 | S.9 36 15 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 55 3 ·26 | S. 9 36 15 ·1 | 111 ·08 |
| 1 | 12 57 13 ·71 | 9 47 21 ·6 | 110 ·60 |
| 2 | 12 59 24 ·37 | 9 58 25 ·2 | 110 ·13 |
| 3 | 13 1 35 ·25 | 10 9 26 ·0 | 109 ·65 |
| 4 | 13 3 46 ·35 | 10 20 23 ·9 | 109 ·15 |
| 5 | 13 5 57 ·66 | 10 31 18 ·8 | 108 ·63 |
| 6 | 13 8 9 ·20 | 10 42 10 ·6 | 108 ·12 |
| 7 | 13 10 20 ·97 | 10 52 59 ·3 | 107 ·57 |
| 8 | 13 12 32 ·96 | 11 3 44 ·7 | 107 ·03 |
| 9 | 13 14 45 ·17 | 11 14 26 ·9 | 106 ·47 |
| 10 | 13 16 57 ·62 | 11 25 5 ·7 | 105 ·90 |
| 11 | 13 19 10 ·30 | 11 35 41 ·1 | 105 ·32 |
| 12 | 13 21 23 ·21 | 11 46 13 ·0 | 104 ·72 |
| 13 | 13 23 36 ·36 | 11 56 41 ·3 | 104 ·12 |
| 14 | 13 25 49 ·74 | 12 7 6 ·0 | 103 ·50 |
| 15 | 13 28 3 ·36 | 12 17 27 ·0 | 102 ·87 |
| 16 | 13 30 17 ·22 | 12 27 44 ·2 | 102 ·23 |
| 17 | 13 32 31 ·32 | 12 37 57 ·6 | 101 ·57 |
| 18 | 13 34 45 ·66 | 12 48 7 ·0 | 100 ·92 |
| 19 | 13 37 0 ·25 | 12 58 12 ·5 | 100 ·23 |
| 20 | 13 39 15 ·08 | 13 8 13 ·9 | 99 ·53 |
| 21 | 13 41 30 ·16 | 13 18 11 ·1 | 98 ·83 |
| 22 | 13 43 45 ·48 | 13 28 4 ·1 | 98 ·13 |
| 23 | 13 46 1 ·05 | S. 13 37 52 ·9 | 97 ·40 |
| | *WEDNESDAY* 26. | | |
| 0 | 13 48 16 ·87 | S. 13 47 37 ·3 | 96 ·67 |
| 1 | 13 50 32 ·94 | 13 57 17 ·3 | 95 ·92 |
| 2 | 13 52 49 ·26 | 14 6 52 ·8 | 95 ·15 |
| 3 | 13 55 5 ·84 | 14 16 23 ·7 | 94 ·38 |
| 4 | 13 57 22 ·67 | 14 25 50 ·0 | 93 ·60 |
| 5 | 13 59 39 ·75 | 14 35 11 ·6 | 92 ·80 |
| 6 | 14 1 57 ·08 | 14 44 28 ·4 | 91 ·98 |
| 7 | 14 4 14 ·67 | 14 53 40 ·3 | 91 ·18 |
| 8 | 14 6 32 ·51 | 15 2 47 ·4 | 90 ·33 |
| 9 | 14 8 50 ·61 | 15 11 49 ·4 | 89 ·50 |
| 10 | 14 11 8 ·96 | 15 20 46 ·4 | 88 ·63 |
| 11 | 14 13 27 ·57 | 15 29 38 ·2 | 87 ·78 |
| 12 | 14 15 46 ·44 | 15 38 24 ·9 | 86 ·90 |
| 13 | 14 18 5 ·56 | 15 47 6 ·3 | 86 ·00 |
| 14 | 14 20 24 ·94 | 15 55 42 ·3 | 85 ·12 |
| 15 | 14 22 44 ·57 | 16 4 13 ·0 | 84 ·18 |
| 16 | 14 25 4 ·46 | 16 12 38 ·1 | 83 ·27 |
| 17 | 14 27 24 ·60 | 16 20 57 ·7 | 82 ·33 |
| 18 | 14 29 45 ·00 | 16 29 11 ·7 | 81 ·40 |
| 19 | 14 32 5 ·65 | 16 37 20 ·1 | 80 ·43 |
| 20 | 14 34 26 ·56 | 16 45 22 ·7 | 79 ·45 |
| 21 | 14 36 47 ·72 | 16 53 19 ·4 | 78 ·48 |
| 22 | 14 39 9 ·13 | 17 1 10 ·3 | 77 ·50 |
| 23 | 14 41 30 ·79 | 17 8 55 ·3 | 76 ·48 |
| 24 | 14 43 52 ·71 | S. 17 16 34 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 43 52 ·71 | S. 17 16 34 ·2 | 75 ·48 |
| 1 | 14 46 14 ·88 | 17 24 7 ·1 | 74 ·45 |
| 2 | 14 48 37 ·29 | 17 31 33 ·8 | 73 ·42 |
| 3 | 14 50 59 ·96 | 17 38 54 ·3 | 72 ·38 |
| 4 | 14 53 22 ·87 | 17 46 8 ·6 | 71 ·32 |
| 5 | 14 55 46 ·03 | 17 53 16 ·5 | 70 ·23 |
| 6 | 14 58 9 ·43 | 18 0 18 ·0 | 69 ·14 |
| 7 | 15 0 33 ·07 | 18 7 13 ·1 | 68 ·03 |
| 8 | 15 2 56 ·96 | 18 14 1 ·6 | 67 ·00 |
| 9 | 15 5 21 ·08 | 18 20 43 ·6 | 65 ·89 |
| 10 | 15 7 45 ·45 | 18 27 18 ·9 | 64 ·77 |
| 11 | 15 10 10 ·05 | 18 33 47 ·5 | 63 ·63 |
| 12 | 15 12 34 ·88 | 18 40 9 ·4 | 62 ·50 |
| 13 | 15 14 59 ·94 | 18 46 24 ·4 | 61 ·33 |
| 14 | 15 17 25 ·24 | 18 52 32 ·5 | 60 ·20 |
| 15 | 15 19 50 ·76 | 18 58 33 ·7 | 59 ·03 |
| 16 | 15 22 16 ·51 | 19 4 27 ·9 | 57 ·85 |
| 17 | 15 24 42 ·48 | 19 10 15 ·0 | 56 ·68 |
| 18 | 15 27 8 ·67 | 19 15 55 ·1 | 55 ·47 |
| 19 | 15 29 35 ·08 | 19 21 27 ·9 | 54 ·28 |
| 20 | 15 32 1 ·70 | 19 26 53 ·6 | 53 ·06 |
| 21 | 15 34 28 ·54 | 19 32 11 ·9 | 51 ·85 |
| 22 | 15 36 55 ·58 | 19 37 23 ·0 | 50 ·60 |
| 23 | 15 39 22 ·83 | S. 19 42 26 ·6 | 49 ·38 |
| | *FRIDAY* 28. | | |
| 0 | 15 41 50 ·28 | S. 19 47 22 ·9 | 48 ·13 |
| 1 | 15 44 17 ·93 | 19 52 11 ·7 | 46 ·87 |
| 2 | 15 46 45 ·78 | 19 56 52 ·9 | 45 ·62 |
| 3 | 15 49 13 ·82 | 20 1 26 ·6 | 44 ·33 |
| 4 | 15 51 42 ·05 | 20 5 52 ·6 | 43 ·07 |
| 5 | 15 54 10 ·47 | 20 10 11 ·0 | 41 ·78 |
| 6 | 15 56 39 ·07 | 20 14 21 ·7 | 40 ·48 |
| 7 | 15 59 7 ·85 | 20 18 24 ·6 | 39 ·18 |
| 8 | 16 1 36 ·80 | 20 22 19 ·7 | 37 ·88 |
| 9 | 16 4 5 ·92 | 20 26 7 ·0 | 36 ·58 |
| 10 | 16 6 35 ·21 | 20 29 46 ·5 | 35 ·28 |
| 11 | 16 9 4 ·67 | 20 33 18 ·0 | 33 ·92 |
| 12 | 16 11 34 ·28 | 20 36 41 ·5 | 32 ·58 |
| 13 | 16 14 4 ·05 | 20 39 57 ·0 | 31 ·27 |
| 14 | 16 16 33 ·96 | 20 43 4 ·6 | 29 ·90 |
| 15 | 16 19 4 ·02 | 20 46 4 ·0 | 28 ·57 |
| 16 | 16 21 34 ·23 | 20 48 55 ·4 | 27 ·20 |
| 17 | 16 24 4 ·57 | 20 51 38 ·6 | 25 ·83 |
| 18 | 16 26 35 ·04 | 20 54 13 ·6 | 24 ·48 |
| 19 | 16 29 5 ·64 | 20 56 40 ·5 | 23 ·10 |
| 20 | 16 31 36 ·37 | 20 58 59 ·1 | 21 ·73 |
| 21 | 16 34 7 ·21 | 21 1 9 ·5 | 20 ·35 |
| 22 | 16 36 38 ·17 | 21 3 11 ·6 | 18 ·97 |
| 23 | 16 39 9 ·23 | 21 5 5 ·4 | 17 ·58 |
| 24 | 16 41 40 ·40 | S. 21 6 50 ·9 | |

## MEAN TIME.

## PHASES OF THE MOON.

| | d | h | m |
|---|---|---|---|
| ● New Moon | 6 | 6 | 35·3 |
| ☽ *First Quarter* | 13 | 16 | 59·9 |
| ○ Full Moon | 21 | 18 | 46·3 |
| ☾ *Last Quarter* | 28 | 22 | 13·5 |

| | d | h |
|---|---|---|
| ☾ Perigee | 3 | 23 |
| ☾ Apogee | 15 | 16 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | Regulus | W. | 93 20 44 | 2278 | 95 7 15 | 2269 | 96 54 0 | 2260 | 98 40 58 |
| | Spica ♍ | W. | 39 23 1 | 2260 | 41 9 59 | 2251 | 42 57 10 | 2241 | 44 44 36 |
| | Venus | E. | 45 39 33 | 2670 | 44 2 13 | 2662 | 42 24 42 | 2653 | 40 46 59 |
| | Sun | E. | 71 32 1 | 2597 | 69 53 2 | 2587 | 68 13 49 | 2577 | 66 34 23 |
| 2 | Regulus | W. | 107 38 54 | 2212 | 109 27 3 | 2206 | 111 15 22 | 2199 | 113 3 51 |
| | Spica ♍ | W. | 53 44 56 | 2191 | 55 33 37 | 2184 | 57 22 28 | 2177 | 59 11 30 |
| | Venus | E. | 32 35 53 | 2613 | 30 57 15 | 2608 | 29 18 31 | 2604 | 27 39 42 |
| | Sun | E. | 58 14 16 | 2528 | 56 33 41 | 2521 | 54 52 57 | 2515 | 53 12 4 |
| 3 | Spica ♍ | W. | 68 19 0 | 2142 | 70 8 55 | 2138 | 71 58 55 | 2135 | 73 49 1 |
| | Antares | W. | 23 18 26 | 2243 | 25 5 50 | 2226 | 26 53 39 | 2212 | 28 41 49 |
| | Venus | E. | 19 25 40 | 2622 | 17 47 15 | 2637 | 16 9 10 | 2659 | 14 31 35 |
| | Sun | E. | 44 45 48 | 2487 | 43 4 16 | 2485 | 41 22 41 | 2483 | 39 41 4 |
| 4 | Spica ♍ | W. | 83 0 31 | 2122 | 84 50 56 | 2122 | 86 41 21 | 2123 | 88 31 45 |
| | Antares | W. | 37 46 15 | 2165 | 39 35 36 | 2162 | 41 25 1 | 2159 | 43 14 31 |
| | Sun | E. | 31 13 12 | 2495 | 29 31 51 | 2502 | 27 50 40 | 2510 | 26 9 41 |
| 8 | Sun | W. | 23 18 33 | 2816 | 24 52 40 | 2823 | 26 26 38 | 2831 | 28 0 26 |
| | α Arietis | E. | 52 46 17 | 2453 | 51 3 58 | 2472 | 49 22 6 | 2492 | 47 40 41 |
| | Aldebaran | E. | 85 40 20 | 2405 | 83 56 52 | 2421 | 82 13 47 | 2436 | 80 31 4 |
| 9 | Sun | W. | 35 45 45 | 2905 | 37 17 57 | 2922 | 38 49 48 | 2937 | 40 21 20 |
| | α Arietis | E. | 39 20 57 | 2624 | 37 42 35 | 2649 | 36 4 47 | 2675 | 34 27 34 |
| | Aldebaran | E. | 72 3 19 | 2538 | 70 22 58 | 2554 | 68 43 0 | 2571 | 67 3 26 |
| | Pollux | E. | 114 3 48 | 2607 | 112 25 3 | 2621 | 110 46 37 | 2637 | 109 8 32 |
| 10 | Sun | W. | 47 53 52 | 3037 | 49 23 19 | 3053 | 50 52 26 | 3070 | 52 21 12 |
| | α Pegasi | W. | 23 29 55 | 3710 | 24 46 32 | 3603 | 26 5 3 | 3517 | 27 25 8 |
| | α Arietis | E. | 26 31 38 | 2877 | 24 58 49 | 2922 | 23 26 58 | 2973 | 21 56 11 |
| | Aldebaran | E. | 58 51 36 | 2677 | 57 14 25 | 2695 | 55 37 38 | 2712 | 54 1 14 |
| | Pollux | E. | 101 3 23 | 2731 | 99 27 24 | 2747 | 97 51 47 | 2763 | 96 16 31 |
| 11 | Sun | W. | 59 39 59 | 3169 | 61 6 45 | 3185 | 62 33 12 | 3201 | 63 59 20 |
| | α Pegasi | W. | 34 20 53 | 3254 | 35 45 58 | 3235 | 37 11 26 | 3219 | 38 37 12 |
| | Jupiter | W. | 18 25 33 | 3042 | 19 54 54 | 3031 | 21 24 28 | 3026 | 22 54 9 |
| | Aldebaran | E. | 46 4 57 | 2815 | 44 30 49 | 2832 | 42 57 3 | 2849 | 41 23 39 |
| | Pollux | E. | 88 25 23 | 2859 | 86 52 11 | 2873 | 85 19 18 | 2889 | 83 46 45 |
| 12 | Sun | W. | 71 5 37 | 3288 | 72 30 2 | 3301 | 73 54 12 | 3314 | 75 18 7 |
| | α Pegasi | W. | 45 48 47 | 3178 | 47 15 22 | 3178 | 48 41 58 | 3178 | 50 8 34 |
| | Jupiter | W. | 30 22 9 | 3044 | 31 51 27 | 3051 | 33 20 36 | 3057 | 34 49 37 |
| | Aldebaran | E. | 33 41 59 | 2950 | 32 10 44 | 2967 | 30 39 50 | 2985 | 29 9 18 |
| | Pollux | E. | 76 8 40 | 2975 | 74 37 56 | 2989 | 73 7 30 | 3003 | 71 37 21 |
| | Regulus | E. | 112 51 57 | 2920 | 111 20 4 | 2931 | 109 48 25 | 2944 | 108 17 2 |
| 13 | Sun | W. | 82 14 16 | 3382 | 83 36 53 | 3393 | 84 59 18 | 3402 | 86 21 32 |
| | α Pegasi | W. | 57 21 15 | 3187 | 58 47 40 | 3190 | 60 14 1 | 3193 | 61 40 19 |
| | Jupiter | W. | 42 12 20 | 3103 | 43 40 26 | 3111 | 45 8 22 | 3117 | 46 36 11 |
| | Pollux | E. | 64 10 32 | 3078 | 62 41 55 | 3089 | 61 13 32 | 3101 | 59 45 23 |
| | Regulus | E. | 100 43 27 | 3006 | 99 13 21 | 3014 | 97 43 26 | 3023 | 96 13 42 |
| 14 | Sun | W. | 93 10 27 | 3447 | 94 31 50 | 3453 | 95 53 7 | 3458 | 97 14 18 |
| | α Pegasi | W. | 68 51 0 | 3209 | 70 16 59 | 3211 | 71 42 55 | 3213 | 73 8 49 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| Regulus | W. | 100 28 9 | 2243 | 102 15 33 | 2235 | 104 3 8 | 2227 | 105 50 55 | 2219 |
| Spica ♍ | W. | 46 32 14 | 2224 | 48 20 6 | 2215 | 50 8 11 | 2207 | 51 56 28 | 2200 |
| Venus | E. | 39 9 6 | 2637 | 37 31 1 | 2630 | 35 52 47 | 2624 | 34 14 24 | 2618 |
| Sun | E. | 64 54 45 | 2560 | 63 14 55 | 2551 | 61 34 53 | 2543 | 59 54 40 | 2535 |
| Regulus | W. | 114 52 29 | 2187 | 116 41 16 | 2182 | 118 30 10 | 2178 | 120 19 11 | 2174 |
| Spica ♍ | W. | 61 0 42 | 2164 | 62 50 4 | 2158 | 64 39 35 | 2153 | 66 29 14 | 2148 |
| Venus | E. | 26 0 50 | 2602 | 24 21 58 | 2602 | 22 43 6 | 2606 | 21 4 19 | 2612 |
| Sun | E. | 51 31 3 | 2503 | 49 49 54 | 2498 | 48 8 38 | 2494 | 46 27 16 | 2490 |
| Spica ♍ | W. | 75 39 12 | 2129 | 77 29 27 | 2126 | 79 19 46 | 2124 | 81 10 8 | 2124 |
| Antares | W. | 30 30 17 | 2190 | 32 19 0 | 2181 | 34 7 56 | 2175 | 35 57 1 | 2169 |
| Venus | E. | 12 54 44 | 2741 | 11 18 59 | 2818 | 9 44 55 | 2944 | 8 13 32 | 3168 |
| Sun | E. | 37 59 26 | 2482 | 36 17 48 | 2484 | 34 36 12 | 2486 | 32 54 39 | 2490 |
| Spica ♍ | W. | 90 22 8 | 2126 | 92 12 28 | 2128 | 94 2 45 | 2130 | 95 52 58 | 2134 |
| Antares | W. | 45 4 2 | 2157 | 46 53 35 | 2157 | 48 43 7 | 2158 | 50 32 37 | 2160 |
| Sun | E. | 24 28 58 | 2535 | 22 48 34 | 2553 | 21 8 35 | 2575 | 19 29 6 | 2604 |
| Sun | W. | 29 34 2 | 2852 | 31 7 23 | 2864 | 32 40 28 | 2877 | 34 13 16 | 2892 |
| α Arietis | E. | 45 59 45 | 2533 | 44 19 17 | 2554 | 42 39 19 | 2577 | 40 59 52 | 2600 |
| Aldebaran | E. | 78 48 44 | 2469 | 77 6 47 | 2486 | 75 25 14 | 2503 | 73 44 5 | 2520 |
| Sun | W. | 41 52 32 | 2970 | 43 23 23 | 2986 | 44 53 53 | 3002 | 46 24 3 | 3019 |
| α Arietis | E. | 32 50 59 | 2733 | 31 15 3 | 2765 | 29 39 49 | 2798 | 28 5 19 | 2836 |
| Aldebaran | E. | 65 24 16 | 2607 | 63 45 31 | 2624 | 62 7 9 | 2641 | 60 29 10 | 2660 |
| Pollux | E. | 107 30 48 | 2668 | 105 53 25 | 2684 | 104 16 23 | 2699 | 102 39 42 | 2716 |
| Sun | W. | 53 49 38 | 3104 | 55 17 43 | 3120 | 56 45 28 | 3137 | 58 12 53 | 3153 |
| α Pegasi | W. | 28 46 30 | 3392 | 30 8 56 | 3345 | 31 32 15 | 3309 | 32 56 16 | 3278 |
| α Arietis | E. | 20 26 39 | 3103 | 18 58 33 | 3186 | 17 32 7 | 3288 | 16 7 42 | 3418 |
| Aldebaran | E. | 52 25 13 | 2747 | 50 49 35 | 2764 | 49 14 20 | 2782 | 47 39 28 | 2798 |
| Pollux | E. | 94 41 36 | 2795 | 93 7 2 | 2811 | 91 32 49 | 2827 | 89 58 56 | 2842 |
| Sun | W. | 65 25 10 | 3231 | 66 50 43 | 3247 | 68 15 57 | 3260 | 69 40 55 | 3274 |
| α Pegasi | W. | 40 3 14 | 3197 | 41 29 26 | 3190 | 42 55 47 | 3184 | 44 22 15 | 3181 |
| Jupiter | W. | 24 23 52 | 3026 | 25 53 33 | 3028 | 27 23 11 | 3033 | 28 52 43 | 3038 |
| Aldebaran | E. | 39 50 36 | 2883 | 38 17 55 | 2899 | 36 45 35 | 2916 | 35 13 37 | 2932 |
| Pollux | E. | 82 14 31 | 2919 | 80 42 36 | 2933 | 79 10 59 | 2947 | 77 39 40 | 2962 |
| Sun | W. | 76 41 48 | 3339 | 78 5 14 | 3350 | 79 28 28 | 3362 | 80 51 28 | 3372 |
| α Pegasi | W. | 51 35 10 | 3178 | 53 1 45 | 3181 | 54 28 17 | 3182 | 55 54 48 | 3185 |
| Jupiter | W. | 36 18 28 | 3074 | 37 47 10 | 3082 | 39 15 42 | 3088 | 40 44 6 | 3096 |
| Aldebaran | E. | 27 39 8 | 3021 | 26 9 22 | 3041 | 24 40 0 | 3062 | 23 11 4 | 3085 |
| Pollux | E. | 70 7 28 | 3029 | 68 37 51 | 3041 | 67 8 29 | 3054 | 65 39 23 | 3066 |
| Regulus | E. | 106 45 53 | 2966 | 105 14 57 | 2976 | 103 44 14 | 2987 | 102 13 45 | 2996 |
| Sun | W. | 87 43 37 | 3419 | 89 5 32 | 3427 | 90 27 18 | 3434 | 91 48 56 | 3440 |
| α Pegasi | W. | 63 6 34 | 3198 | 64 32 45 | 3201 | 65 58 53 | 3204 | 67 24 58 | 3206 |
| Jupiter | W. | 48 3 52 | 3130 | 49 31 25 | 3136 | 50 58 51 | 3142 | 52 26 10 | 3147 |
| Pollux | E. | 58 17 28 | 3123 | 56 49 46 | 3134 | 55 22 17 | 3144 | 53 55 1 | 3155 |
| Regulus | E. | 94 44 7 | 3039 | 93 14 42 | 3045 | 91 45 25 | 3052 | 90 16 17 | 3058 |
| Sun | W. | 98 35 23 | 3467 | 99 56 24 | 3471 | 101 17 21 | 3474 | 102 38 14 | 3477 |
| α Pegasi | W. | 74 34 41 | 3216 | 76 0 31 | 3218 | 77 26 19 | 3219 | 78 52 6 | 3220 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 14 | Jupiter | W. | 53 53 23 | 3152 | 55 20 30 | 3156 | 56 47 32 | 3160 | 58 14 2 |
| | α Arietis | W. | 25 15 15 | 3262 | 26 40 11 | 3246 | 28 5 26 | 3232 | 29 30 3 |
| | Pollux | E. | 52 27 58 | 3166 | 51 1 8 | 3176 | 49 34 30 | 3186 | 48 8 |
| | Regulus | E. | 88 47 16 | 3065 | 87 18 23 | 3069 | 85 49 36 | 3074 | 84 20 5 |
| 15 | Sun | W. | 103 59 4 | 3480 | 105 19 51 | 3480 | 106 40 37 | 3482 | 108 1 2 |
| | α Pegasi | W. | 80 17 52 | 3220 | 81 43 38 | 3220 | 83 9 23 | 3220 | 84 35 |
| | Jupiter | W. | 65 28 22 | 3175 | 66 55 1 | 3175 | 68 21 40 | 3176 | 69 48 1 |
| | α Arietis | W. | 36 41 20 | 3183 | 38 7 50 | 3178 | 39 34 26 | 3172 | 41 1 |
| | Pollux | E. | 40 59 11 | 3253 | 39 34 5 | 3267 | 38 9 15 | 3281 | 36 44 |
| | Regulus | E. | 76 58 38 | 3094 | 75 30 21 | 3095 | 74 2 5 | 3096 | 72 33 |
| 16 | Sun | W. | 114 45 1 | 3480 | 116 5 48 | 3477 | 117 26 38 | 3475 | 118 47 3 |
| | α Pegasi | W. | 91 44 5 | 3214 | 93 9 57 | 3213 | 94 35 51 | 3210 | 96 1 4 |
| | Jupiter | W. | 77 1 36 | 3170 | 78 28 21 | 3168 | 79 55 9 | 3164 | 81 22 |
| | α Arietis | W. | 48 16 15 | 3141 | 49 43 35 | 3136 | 51 11 1 | 3130 | 52 38 |
| | Aldebaran | W. | 15 16 26 | 3287 | 16 40 53 | 3249 | 18 6 4 | 3220 | 19 31 |
| | Pollux | E. | 29 46 56 | 3402 | 28 24 42 | 3433 | 27 3 3 | 3470 | 25 42 |
| | Regulus | E. | 65 12 46 | 3095 | 63 44 30 | 3093 | 62 16 12 | 3091 | 60 47 |
| | Spica ♍ | E. | 119 4 7 | 3071 | 117 35 22 | 3069 | 116 6 34 | 3066 | 114 37 4 |
| 17 | Sun | W. | 125 32 49 | 3451 | 126 54 8 | 3447 | 128 15 32 | 3441 | 129 37 |
| | Jupiter | W. | 88 37 28 | 3139 | 90 4 50 | 3133 | 91 32 20 | 3128 | 92 59 |
| | α Arietis | W. | 59 58 4 | 3093 | 61 26 22 | 3087 | 62 54 48 | 3079 | 64 23 |
| | Aldebaran | W. | 26 46 37 | 3115 | 28 14 29 | 3102 | 29 42 36 | 3090 | 31 10 |
| | Regulus | E. | 53 25 17 | 3073 | 51 56 34 | 3068 | 50 27 45 | 3063 | 48 58 |
| | Spica ♍ | E. | 107 12 21 | 3041 | 105 42 59 | 3036 | 104 13 31 | 3030 | 102 43 |
| 18 | Jupiter | W. | 100 19 58 | 3086 | 101 48 25 | 3078 | 103 17 1 | 3069 | 104 45 |
| | α Arietis | W. | 71 48 38 | 3032 | 73 18 11 | 3023 | 74 47 55 | 3014 | 76 17 |
| | Aldebaran | W. | 38 36 5 | 3026 | 40 5 45 | 3016 | 41 35 38 | 3006 | 43 5 |
| | Regulus | E. | 41 32 51 | 3034 | 40 3 21 | 3030 | 38 33 45 | 3025 | 37 4 |
| | Spica ♍ | E. | 95 13 55 | 2989 | 93 43 28 | 2981 | 92 12 51 | 2972 | 90 42 |
| 19 | Jupiter | W. | 112 12 21 | 3017 | 113 42 13 | 3008 | 115 12 16 | 2998 | 116 42 |
| | α Arietis | W. | 83 50 16 | 2958 | 85 21 21 | 2948 | 86 52 39 | 2939 | 88 24 |
| | Aldebaran | W. | 50 39 29 | 2943 | 52 10 54 | 2932 | 53 42 32 | 2920 | 55 14 |
| | Regulus | E. | 29 34 14 | 3004 | 28 4 6 | 3003 | 26 33 57 | 3005 | 25 3 |
| | Spica ♍ | E. | 83 5 19 | 2918 | 81 33 23 | 2909 | 80 1 15 | 2898 | 78 28 |
| 20 | α Arietis | W. | 96 4 52 | 2877 | 97 37 40 | 2868 | 99 10 40 | 2857 | 100 43 |
| | Aldebaran | W. | 62 57 14 | 2856 | 64 30 30 | 2844 | 66 4 1 | 2834 | 67 37 |
| | Pollux | W. | 22 47 25 | 3352 | 24 10 37 | 3282 | 25 35 10 | 3222 | 27 0 |
| | Spica ♍ | E. | 70 43 56 | 2837 | 69 10 16 | 2827 | 67 36 23 | 2816 | 66 2 |
| | Antares | E. | 116 8 22 | 2859 | 114 35 10 | 2847 | 113 1 43 | 2835 | 111 28 |
| 21 | α Arietis | W. | 108 33 18 | 2798 | 110 7 49 | 2788 | 111 42 33 | 2778 | 113 17 |
| | Aldebaran | W. | 75 30 4 | 2767 | 77 5 15 | 2757 | 78 40 39 | 2745 | 80 16 |
| | Pollux | W. | 34 23 1 | 2983 | 35 53 35 | 2956 | 37 24 43 | 2930 | 38 56 |
| | Spica ♍ | E. | 58 8 13 | 2753 | 56 32 43 | 2741 | 54 56 58 | 2731 | 53 21 |
| | Antares | E. | 103 36 1 | 2770 | 102 0 54 | 2759 | 100 25 32 | 2749 | 98 49 |
| | Mars | E. | 116 47 29 | 2974 | 115 16 43 | 2962 | 113 45 42 | 2950 | 112 14 |
| 22 | Aldebaran | W. | 88 18 5 | 2683 | 89 55 8 | 2673 | 91 32 24 | 2663 | 93 9 |

## MEAN TIME.

### LUNAR DISTANCES.

| ar's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| iter | W. | 59 41 22 | 3166 | 61 8 12 | 3169 | 62 34 58 | 3172 | 64 1 41 | 3173 |
| rietis | W. | 30 56 41 | 3211 | 32 22 37 | 3203 | 33 48 43 | 3196 | 35 14 57 | 3188 |
| lux | E. | 46 41 52 | 3207 | 45 15 51 | 3219 | 43 50 4 | 3230 | 42 24 30 | 3242 |
| ;ulus | E. | 82 52 19 | 3083 | 81 23 48 | 3086 | 79 55 21 | 3089 | 78 26 58 | 3092 |
| | W. | 109 22 5 | 3483 | 110 42 48 | 3483 | 112 3 31 | 3482 | 113 24 15 | 3480 |
| egasi | W. | 86 0 53 | 3219 | 87 26 40 | 3219 | 88 52 27 | 3218 | 90 18 15 | 3216 |
| iter | W. | 71 14 55 | 3176 | 72 41 33 | 3175 | 74 8 12 | 3173 | 75 34 53 | 3172 |
| rietis | W. | 42 27 58 | 3161 | 43 54 54 | 3157 | 45 21 55 | 3152 | 46 49 2 | 3147 |
| lux | E. | 35 20 25 | 3313 | 33 56 28 | 3331 | 32 32 53 | 3351 | 31 9 41 | 3375 |
| ;ulus | E. | 71 5 38 | 3098 | 69 37 26 | 3097 | 68 9 13 | 3097 | 66 41 0 | 3096 |
| | W. | 120 8 26 | 3469 | 121 29 25 | 3464 | 122 50 29 | 3461 | 124 11 37 | 3457 |
| egasi | W. | 97 27 47 | 3206 | 98 53 49 | 3203 | 100 19 54 | 3200 | 101 46 3 | 3197 |
| iter | W. | 82 48 56 | 3157 | 84 15 56 | 3153 | 85 43 1 | 3148 | 87 10 12 | 3144 |
| rietis | W. | 54 6 13 | 3119 | 55 34 0 | 3113 | 57 1 54 | 3107 | 58 29 55 | 3101 |
| ebaran | W. | 20 58 4 | 3176 | 22 24 42 | 3158 | 23 51 42 | 3142 | 25 19 1 | 3128 |
| lux | E. | 24 21 54 | 3563 | 23 2 39 | 3624 | 21 44 31 | 3700 | 20 27 44 | 3793 |
| ;ulus | E. | 59 19 28 | 3086 | 57 51 1 | 3083 | 56 22 31 | 3079 | 54 53 56 | 3076 |
| :a ny | E. | 113 8 48 | 3060 | 111 39 49 | 3056 | 110 10 45 | 3052 | 108 41 36 | 3047 |
| | W. | 130 58 38 | 3430 | 132 20 21 | 3423 | 133 42 11 | 3417 | 135 4 8 | 3411 |
| iter | W. | 94 27 40 | 3115 | 95 55 32 | 3108 | 97 23 32 | 3101 | 98 51 40 | 3093 |
| rietis | W. | 65 52 7 | 3065 | 67 21 0 | 3057 | 68 50 2 | 3048 | 70 19 15 | 3040 |
| ebaran | W. | 32 39 33 | 3068 | 34 8 21 | 3057 | 35 37 23 | 3047 | 37 6 37 | 3036 |
| ;ulus | E. | 47 29 50 | 3055 | 46 0 45 | 3049 | 44 31 33 | 3044 | 43 2 15 | 3039 |
| :a ny | E. | 101 14 12 | 3018 | 99 44 21 | 3010 | 98 14 21 | 3004 | 96 44 13 | 2996 |
| iter | W. | 106 14 45 | 3052 | 107 43 53 | 3044 | 109 13 11 | 3035 | 110 42 40 | 3026 |
| rietis | W. | 77 47 56 | 2997 | 79 18 13 | 2987 | 80 48 42 | 2978 | 82 19 23 | 2968 |
| ebaran | W. | 44 36 3 | 2985 | 46 6 34 | 2974 | 47 37 19 | 2964 | 49 8 17 | 2953 |
| ;ulus | E. | 35 34 14 | 3015 | 34 4 21 | 3012 | 32 34 23 | 2008 | 31 4 20 | 3005 |
| :a ny | E. | 89 11 4 | 2955 | 87 39 55 | 2946 | 86 8 35 | 2937 | 84 37 3 | 2928 |
| iter | W. | 118 12 59 | 2979 | 119 43 38 | 2969 | 121 14 30 | 2959 | 122 45 34 | 2950 |
| rietis | W. | 89 55 52 | 2918 | 91 27 48 | 2909 | 92 59 56 | 2898 | 94 32 18 | 2888 |
| ebaran | W. | 56 46 31 | 2900 | 58 18 50 | 2888 | 59 51 24 | 2877 | 61 24 12 | 2866 |
| ;ulus | E. | 23 33 46 | 3013 | 22 3 49 | 3022 | 20 34 3 | 3036 | 19 4 35 | 3056 |
| :a ny | E. | 76 56 21 | 2878 | 75 23 34 | 2869 | 73 50 35 | 2858 | 72 17 22 | 2848 |
| rietis | W. | 102 17 21 | 2838 | 103 51 0 | 2827 | 105 24 53 | 2817 | 106 58 59 | 2807 |
| ebaran | W. | 69 11 44 | 2811 | 70 45 58 | 2800 | 72 20 26 | 2789 | 73 55 8 | 2779 |
| ux | W. | 28 27 39 | 3124 | 29 55 19 | 3083 | 31 23 50 | 3047 | 32 53 5 | 3014 |
| :a ny | E. | 64 27 55 | 2795 | 62 53 21 | 2784 | 61 18 32 | 2774 | 59 43 30 | 2763 |
| ares | E. | 109 54 6 | 2814 | 108 19 56 | 2803 | 106 45 32 | 2792 | 105 10 54 | 2781 |
| rietis | W. | 114 52 39 | 2760 | 116 27 59 | 2751 | 118 3 31 | 2742 | 119 39 15 | 2733 |
| ebaran | W. | 81 52 12 | 2725 | 83 28 19 | 2714 | 85 4 41 | 2704 | 86 41 16 | 2693 |
| lux | W. | 40 28 36 | 2884 | 42 1 16 | 2863 | 43 34 22 | 2843 | 45 7 54 | 2824 |
| :a ny | E. | 51 44 47 | 2710 | 50 8 21 | 2700 | 48 31 41 | 2690 | 46 54 47 | 2680 |
| ares | E. | 97 14 7 | 2727 | 95 38 3 | 2717 | 94 1 45 | 2707 | 92 25 14 | 2696 |
| s | E. | 110 42 58 | 2928 | 109 11 15 | 2917 | 107 39 18 | 2906 | 106 7 7 | 2896 |
| ebaran | W. | 94 47 36 | 2643 | 96 25 32 | 2634 | 98 3 41 | 2625 | 99 42 2 | 2615 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 22 | Pollux | W. | 46 41 51 | 2807 | 48 16 10 | 2790 | 49 50 51 | 2774 | 51 25 53 | 2758 |
| | Regulus | W. | 10 15 17 | 3307 | 11 39 21 | 3136 | 13 6 47 | 3022 | 14 36 33 | 2939 |
| | Spica ♍ | E. | 45 17 40 | 2669 | 43 40 19 | 2660 | 42 2 45 | 2649 | 40 24 57 | 2640 |
| | Antares | E. | 90 48 29 | 2687 | 89 11 31 | 2676 | 87 34 19 | 2666 | 85 56 53 | 2656 |
| | Mars | E. | 104 34 43 | 2885 | 103 2 5 | 2875 | 101 29 14 | 2864 | 99 56 9 | 2854 |
| 23 | Aldebaran | W. | 101 20 36 | 2606 | 102 59 23 | 2598 | 104 38 21 | 2588 | 106 17 32 | 2580 |
| | Pollux | W. | 59 25 54 | 2690 | 61 2 47 | 2678 | 62 39 56 | 2666 | 64 17 22 | 2655 |
| | Regulus | W. | 22 25 12 | 2721 | 24 1 24 | 2696 | 25 38 9 | 2675 | 27 15 23 | 2655 |
| | Spica ♍ | E. | 32 12 44 | 2593 | 30 33 40 | 2585 | 28 54 24 | 2576 | 27 14 56 | 2568 |
| | Antares | E. | 77 46 32 | 2610 | 76 7 51 | 2601 | 74 28 57 | 2593 | 72 49 52 | 2584 |
| | Mars | E. | 92 7 28 | 2805 | 90 33 6 | 2795 | 88 58 31 | 2785 | 87 23 44 | 2776 |
| 24 | Pollux | W. | 72 28 7 | 2604 | 74 6 57 | 2594 | 75 46 0 | 2585 | 77 25 15 | 25[illegible] |
| | Regulus | W. | 35 27 27 | 2580 | 37 6 50 | 2567 | 38 46 30 | 2556 | 40 26 26 | 25[illegible] |
| | Antares | E. | 64 31 37 | 2546 | 62 51 27 | 2538 | 61 11 6 | 2531 | 59 30 36 | 25[illegible] |
| | Mars | E. | 79 26 51 | 2732 | 77 50 54 | 2725 | 76 14 47 | 2717 | 74 38 29 | 27[illegible] |
| | α Aquilæ | E. | 115 15 47 | 3047 | 113 46 32 | 3025 | 112 16 50 | 3006 | 110 46 44 | 29[illegible] |
| 25 | Pollux | W. | 85 44 18 | 2538 | 87 24 38 | 2531 | 89 5 8 | 2525 | 90 45 46 | 251[illegible] |
| | Regulus | W. | 48 49 38 | 2497 | 50 30 55 | 2490 | 52 12 23 | 2481 | 53 54 3 | 247[illegible] |
| | Antares | E. | 51 5 50 | 2495 | 49 24 29 | 2489 | 47 43 0 | 2485 | 46 1 25 | 248[illegible] |
| | Mars | E. | 66 34 23 | 2672 | 64 57 5 | 2664 | 63 19 37 | 2658 | 61 42 0 | 265[illegible] |
| | α Aquilæ | E. | 103 10 50 | 2910 | 101 38 44 | 2898 | 100 6 23 | 2886 | 98 33 46 | 287[illegible] |
| | Saturn | E. | 116 21 50 | 2524 | 114 41 10 | 2517 | 113 0 20 | 2510 | 111 19 20 | 250[illegible] |
| | Venus | E. | 120 0 13 | 2909 | 118 28 5 | 2900 | 116 55 46 | 2893 | 115 23 18 | 2884 |
| | Sun | E. | 140 17 16 | 2836 | 138 43 35 | 2828 | 137 9 43 | 2818 | 135 35 38 | 2808 |
| 26 | Pollux | W. | 99 11 8 | 2490 | 100 52 35 | 2485 | 102 34 9 | 2481 | 104 15 49 | 2477 |
| | Regulus | W. | 62 25 1 | 2438 | 64 7 42 | 2431 | 65 50 32 | 2425 | 67 33 31 | 2419 |
| | Antares | E. | 37 32 8 | 2465 | 35 50 5 | 2463 | 34 8 0 | 2463 | 32 25 55 | 2464 |
| | Mars | E. | 53 31 44 | 2620 | 51 53 16 | 2614 | 50 14 40 | 2608 | 48 35 56 | 2603 |
| | α Aquilæ | E. | 90 47 46 | 2836 | 89 14 5 | 2831 | 87 40 17 | 2826 | 86 6 23 | 2822 |
| | Saturn | E. | 102 51 56 | 2470 | 101 10 0 | 2464 | 99 27 56 | 2458 | 97 45 43 | 2452 |
| | Venus | E. | 107 38 32 | 2849 | 106 5 8 | 2843 | 104 31 36 | 2836 | 102 57 55 | 2830 |
| | Sun | E. | 127 42 27 | 2769 | 126 7 18 | 2761 | 124 31 59 | 2754 | 122 56 31 | 2747 |
| 27 | Regulus | W. | 76 10 33 | 2391 | 77 54 21 | 2385 | 79 38 17 | 2380 | 81 22 20 | 2375 |
| | Spica ♍ | W. | 22 9 36 | 2374 | 23 53 48 | 2369 | 25 38 8 | 2364 | 27 22 35 | 2358 |
| | Antares | E. | 23 56 24 | 2493 | 22 15 1 | 2507 | 20 33 57 | 2528 | 18 53 23 | 2556 |
| | Mars | E. | 40 20 30 | 2577 | 38 41 4 | 2573 | 37 1 32 | 2569 | 35 21 55 | 2564 |
| | α Aquilæ | E. | 78 16 1 | 2816 | 76 41 54 | 2818 | 75 7 49 | 2820 | 73 33 47 | 2824 |
| | Saturn | E. | 89 12 41 | 2425 | 87 29 42 | 2420 | 85 46 36 | 2416 | 84 3 24 | 2410 |
| | Venus | E. | 95 7 33 | 2801 | 93 33 6 | 2796 | 91 58 33 | 2790 | 90 23 52 | 2785 |
| | Sun | E. | 114 57 0 | 2716 | 113 20 41 | 2711 | 111 44 15 | 2704 | 110 7 40 | 2699 |
| 28 | Regulus | W. | 90 4 17 | 2353 | 91 49 0 | 2348 | 93 33 50 | 2345 | 95 18 44 | 2340 |
| | Spica ♍ | W. | 36 6 41 | 2335 | 37 51 50 | 2330 | 39 37 6 | 2326 | 41 22 28 | 2322 |
| | Mars | E. | 27 2 27 | 2548 | 25 22 20 | 2546 | 23 42 11 | 2544 | 22 1 59 | 2544 |
| | α Aquilæ | E. | 65 45 18 | 2860 | 64 12 8 | 2871 | 62 39 12 | 2885 | 61 6 34 | 2900 |
| | Saturn | E. | 75 25 44 | 2389 | 73 41 54 | 2385 | 71 57 58 | 2382 | 70 13 57 | 2378 |
| | Venus | E. | 82 28 52 | 2761 | 80 53 33 | 2757 | 79 18 9 | 2753 | 77 42 40 | 2749 |
| | Sun | E. | 102 3 1 | 2673 | 100 25 45 | 2668 | 98 48 22 | 2663 | 97 10 53 | 2659 |

## ECLIPSES OF THE SATELLITES OF JUPITER.

| TELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 11 46 16·8 | 8 34 25·0 | Em. |
| | 3* | 6 15 8·9 | 3 10 15·7 | Em. |
| | 5 | 0 44 6·0 | 21 46 11·6 | Em. |
| | 6 | 19 12 56·0 | 16 22 0·2 | Em. |
| | 8 | 13 41 50·6 | 10 57 53·6 | Em. |
| | 10† | 8 10 41·2 | 5 33 42·9 | Em. |
| | 12 | 2 39 36·9 | 0 9 37·3 | Em. |
| | 13 | 21 8 25·4 | 18 45 24·6 | Em. |
| | 15 | 15 37 18·7 | 13 21 16·5 | Em. |
| | 17 | 10 6 7·6 | 7 57 4·1 | Em. |
| | 19 | 4 35 1·7 | 2 32 57·0 | Em. |
| | 20 | 23 3 48·9 | 21 8 42·8 | Em. |
| | 22 | 17 32 40·3 | 15 44 33·0 | Em. |
| | 24 | 12 1 27·7 | 10 20 19·1 | Em. |
| | 26* | 6 30 20·0 | 4 56 10·1 | Em. |
| | 28 | 0 59 5·9 | 23 31 54·6 | Em. |
| II. | 2 | 16 33 46·1 | 13 26 38·1 | Em. |
| | 6* | 5 52 10·8 | 2 59 3·5 | Em. |
| | 9 | 19 10 27·2 | 16 31 20·7 | Em. |
| | 13† | 8 28 56·3 | 6 3 50·6 | Em. |
| | 16 | 21 47 14·1 | 19 36 9·3 | Em. |
| | 20 | 11 5 47·8 | 9 8 43·9 | Em. |
| | 24 | 0 24 6·4 | 22 41 3·2 | Em. |
| | 27 | 13 42 45·2 | 12 13 42·9 | Em. |
| III. | 6 | 19 48 56·5 | 16 58 6·7 | Im. |
| | 6 | 22 28 1·9 | 19 37 38·2 | Em. |
| | 13 | 23 52 0·7 | 21 29 26·7 | Im. |
| | 14 | 2 30 4·0 | 0 7 55·9 | Em. |
| | 21 | 3 54 23·3 | 2 0 4·9 | Im. |
| | 21* | 6 31 22·9 | 4 37 30·4 | Em. |
| | 28 | 10 32 29·3 | 9 6 52·3 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | 1* 5 19 | | 2* 2 32 | 2* 4 49 | 2* 3 34 | 2† 5 49 |
| | 3 23 56 | | 4 21 9 | 4 23 26 | 4 22 10 | 4 0 25 |
| | 4 18 33 | | 5 15 46 | 5 18 3 | 5 16 45 | 5 19 1 |
| | 6 13 11 | | 7 10 23 | 7 12 40 | 7 11 21 | 7 13 36 |
| | 8 7 48 | In | 9* 5 0 | 9 7 17 | 9† 5 57 | 9 8 12 |
| | 10 2 25 | | 11 23 38 | 11 1 55 | 11 0 33 | 11† 2 48 |
| | 11 21 3 | | 12 18 15 | 12 20 32 | 12 19 9 | 12 21 24 |
| | 13 15 40 | | 14 12 53 | 14 15 9 | 14 13 45 | 14 16 0 |
| | 15 10 18 | the | 16 7 30 | 16 9 47 | 16 8 20 | 16 10 35 |
| | 17* 4 55 | | 18 2 8 | 18* 4 24 | 18 2 56 | 18* 5 11 |
| | 19 23 33 | | 19 20 45 | 20 23 1 | 19 21 32 | 20 23 47 |
| | 20 18 10 | | 21 15 22 | 21 17 39 | 21 16 8 | 21 18 23 |
| | 22 12 48 | Shadow. | 23 10 0 | 23 12 16 | 23 10 43 | 23 12 58 |
| | 24 7 25 | | 25† 4 37 | 25 6 54 | 25* 5 19 | 25 7 34 |
| | 26 2 3 | | 27 23 15 | 27 1 31 | 27 23 55 | 27 2 10 |
| | 27 20 40 | | 28 17 53 | 28 20 9 | 28 18 31 | 28 20 46 |
| II. | 2 8 50 | | 4* 4 7 | 4 6 48 | 4† 6 8 | 4 8 44 |
| | 6 22 28 | | 7 17 46 | 7 20 27 | 7 19 42 | 8 22 17 |
| | 9 12 6 | In | 11 7 24 | 11 10 5 | 11 9 14 | 11 11 49 |
| | 13 1 41 | | 14 21 4 | 15 23 44 | 15 22 47 | 15 1 23 |
| | 16 15 23 | the | 18 10 42 | 18 13 23 | 18 12 20 | 18 14 55 |
| | 20* 5 2 | | 22 0 22 | 22 3 2 | 22 1 53 | 22* 4 28 |
| | 23 18 41 | Shadow. | 25 14 1 | 25 16 41 | 25 15 26 | 25 18 0 |
| | 27 8 20 | | | | | |
| III. | 6 12 49 | 6 16 0 | 3 22 22 | 3 1 33 | 3† 2 36 | 3† 5 29 |
| | 13 17 45 | 13 20 54 | 10† 3 16 | 10 6 26 | 10 7 6 | 10 9 59 |
| | 21 22 41 | 21 1 50 | 17 8 12 | 17 11 21 | 17 11 37 | 17 14 28 |
| | 28 3 40 | | 24 13 10 | 24 16 17 | 24 16 8 | 24 18 58 |
| IV. | 2 14 18 | 2 16 55 | 11† 2 45 | 11* 5 11 | | |
| | 19 12 6 | 19 14 24 | 28 0 43 | 28 2 46 | | |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to Apparent Time.* | Diff. for 1 hour. |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| Sat. | 1 | 22 49 12·39 | 9·345 | S. 7 30 54·9 | 57·16 | 1 5·34 | 12 34·70 | 0·51 |
| *Sun.* | 2 | 22 52 56·66 | 9·325 | 7 8 3·1 | 57·41 | 1 5·27 | 12 22·45 | 0·53 |
| Mon. | 3 | 22 56 40·46 | 9·306 | 6 45 5·2 | 57·65 | 1 5·20 | 12 9·74 | 0·54 |
| Tues. | 4 | 23 0 23·80 | 9·288 | 6 22 1·6 | 57·87 | 1 5·13 | 11 56·56 | 0·56 |
| Wed. | 5 | 23 4 6·71 | 9·270 | 5 58 52·6 | 58·08 | 1 5·07 | 11 42·95 | 0·58 |
| Thur. | 6 | 23 7 49·19 | 9·253 | 5 35 38·8 | 58·26 | 1 5·01 | 11 28·92 | 0·60 |
| Frid. | 7 | 23 11 31·27 | 9·237 | 5 12 20·5 | 58·44 | 1 4·95 | 11 14·49 | 0·617 |
| Sat. | 8 | 23 15 12·96 | 9·222 | 4 48 58·0 | 58·59 | 1 4·89 | 10 59·67 | 0·633 |
| *Sun.* | 9 | 23 18 54·28 | 9·207 | 4 25 31·9 | 58·73 | 1 4·84 | 10 44·48 | 0·648 |
| Mon. | 10 | 23 22 35·24 | 9·193 | 4 2 2·5 | 58·85 | 1 4·79 | 10 28·92 | 0·662 |
| Tues. | 11 | 23 26 15·86 | 9·179 | 3 38 30·2 | 58·95 | 1 4·74 | 10 13·03 | 0·675 |
| Wed. | 12 | 23 29 56·15 | 9·166 | 3 14 55·4 | 59·04 | 1 4·70 | 9 56·82 | 0·688 |
| Thur. | 13 | 23 33 36·14 | 9·154 | 2 51 18·5 | 59·11 | 1 4·66 | 9 40·30 | 0·700 |
| Frid. | 14 | 23 37 15·84 | 9·143 | 2 27 39·9 | 59·17 | 1 4·62 | 9 23·49 | 0·711 |
| Sat. | 15 | 23 40 55·27 | 9·133 | 2 3 59·9 | 59·21 | 1 4·58 | 9 6·42 | 0·722 |
| *Sun.* | 16 | 23 44 34·45 | 9·123 | 1 40 18·9 | 59·23 | 1 4·55 | 8 49·09 | 0·731 |
| Mon. | 17 | 23 48 13·39 | 9·114 | 1 16 37·3 | 59·24 | 1 4·52 | 8 31·54 | 0·740 |
| Tues. | 18 | 23 51 52·13 | 9·106 | 0 52 55·5 | 59·24 | 1 4·50 | 8 13·77 | 0·748 |
| Wed. | 19 | 23 55 30·68 | 9·100 | 0 29 13·7 | 59·22 | 1 4·47 | 7 55·82 | 0·755 |
| Thur. | 20 | 23 59 9·07 | 9·094 | S. 0 5 32·3 | 59·19 | 1 4·45 | 7 37·71 | 0·760 |
| Frid. | 21 | 0 2 47·33 | 9·089 | N. 0 18 8·3 | 59·15 | 1 4·43 | 7 19·46 | 0·765 |
| Sat. | 22 | 0 6 25·46 | 9·085 | 0 41 47·8 | 59·09 | 1 4·42 | 7 1·09 | 0·769 |
| *Sun.* | 23 | 0 10 3·50 | 9·082 | 1 5 25·9 | 59·01 | 1 4·41 | 6 42·63 | 0·772 |
| Mon. | 24 | 0 13 41·47 | 9·080 | 1 29 2·1 | 58·92 | 1 4·40 | 6 24·09 | 0·774 |
| Tues. | 25 | 0 17 19·39 | 9·079 | 1 52 36·3 | 58·82 | 1 4·40 | 6 5·52 | 0·775 |
| Wed. | 26 | 0 20 57·29 | 9·080 | 2 16 8·0 | 58·70 | 1 4·39 | 5 46·92 | 0·775 |
| Thur. | 27 | 0 24 35·21 | 9·081 | 2 39 36·9 | 58·58 | 1 4·39 | 5 28·33 | 0·773 |
| Frid. | 28 | 0 28 13·15 | 9·083 | 3 3 2·8 | 58·43 | 1 4·39 | 5 9·77 | 0·771 |
| Sat. | 29 | 0 31 51·14 | 9·086 | 3 26 25·2 | 58·27 | 1 4·40 | 4 51·26 | 0·768 |
| *Sun.* | 30 | 0 35 29·20 | 9·090 | 3 49 43·7 | 58·10 | 1 4·41 | 4 32·82 | 0·765 |
| Mon. | 31 | 0 39 7·35 | 9·094 | 4 12 58·1 | 57·91 | 1 4·42 | 4 14·46 | 0·760 |
| Tues. | 32 | 0 42 45·60 | | N. 4 36 8·0 | | 1 4·43 | 3 56·22 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0ˢ·18 from the *Sidereal* Time.

## AT MEAN NOON.

| Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|
| | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| 1 | 22 49 10 ·43 | S. 7 31 6 ·9 | 16 9 ·1 | 12 34 ·81 | 22 36 35 ·62 |
| 2 | 22 52 54 ·73 | 7 8 14 ·9 | 16 8 ·9 | 12 22 ·56 | 22 40 32 ·17 |
| 3 | 22 56 38 ·57 | 6 45 16 ·9 | 16 8 ·6 | 12 9 ·85 | 22 44 28 ·72 |
| 4 | 23 0 21 ·95 | 6 22 13 ·1 | 16 8 ·4 | 11 56 ·68 | 22 48 25 ·28 |
| 5 | 23 4 4 ·90 | 5 59 4 ·0 | 16 8 ·1 | 11 43 ·07 | 22 52 21 ·83 |
| 6 | 23 7 47 ·42 | 5 35 50 ·0 | 16 7 ·8 | 11 29 ·04 | 22 56 18 ·38 |
| 7 | 23 11 29 ·54 | 5 12 31 ·4 | 16 7 ·6 | 11 14 ·61 | 23 0 14 ·93 |
| 8 | 23 15 11 ·27 | 4 49 8 ·8 | 16 7 ·3 | 10 59 ·79 | 23 4 11 ·49 |
| 9 | 23 18 52 ·63 | 4 25 42 ·4 | 16 7 ·1 | 10 44 ·59 | 23 8 8 ·04 |
| 10 | 23 22 33 ·63 | 4 2 12 ·8 | 16 6 ·8 | 10 29 ·04 | 23 12 4 ·59 |
| 11 | 23 26 14 ·29 | 3 38 40 ·2 | 16 6 ·6 | 10 13 ·15 | 23 16 1 ·14 |
| 12 | 23 29 54 ·63 | 3 15 5 ·2 | 16 6 ·3 | 9 56 ·94 | 23 19 57 ·69 |
| 13 | 23 33 34 ·66 | 2 51 28 ·0 | 16 6 ·0 | 9 40 ·41 | 23 23 54 ·25 |
| 14 | 23 37 14 ·40 | 2 27 49 ·1 | 16 5 ·8 | 9 23 ·60 | 23 27 50 ·80 |
| 15 | 23 40 53 ·88 | 2 4 8 ·8 | 16 5 ·5 | 9 6 ·53 | 23 31 47 ·35 |
| 16 | 23 44 33 ·10 | 1 40 27 ·6 | 16 5 ·2 | 8 49 ·20 | 23 35 43 ·90 |
| 17 | 23 48 12 ·10 | 1 16 45 ·7 | 16 5 ·0 | 8 31 ·64 | 23 39 40 ·46 |
| 18 | 23 51 50 ·88 | 0 53 3 ·6 | 16 4 ·7 | 8 13 ·87 | 23 43 37 ·01 |
| 19 | 23 55 29 ·48 | 0 29 21 ·5 | 16 4 ·4 | 7 55 ·92 | 23 47 33 ·56 |
| 20 | 23 59 7 ·92 | S. 0 5 39 ·8 | 16 4 ·2 | 7 37 ·80 | 23 51 30 ·11 |
| 21 | 0 2 46 ·22 | N. 0 18 1 ·1 | 16 3 ·9 | 7 19 ·55 | 23 55 26 ·67 |
| 22 | 0 6 24 ·40 | 0 41 40 ·9 | 16 3 ·6 | 7 1 ·18 | 23 59 23 ·22 |
| 23 | 0 10 2 ·48 | 1 5 19 ·3 | 16 3 ·3 | 6 42 ·71 | 0 3 19 ·77 |
| 24 | 0 13 40 ·50 | 1 28 55 ·8 | 16 3 ·1 | 6 24 ·18 | 0 7 16 ·32 |
| 25 | 0 17 18 ·47 | 1 52 30 ·3 | 16 2 ·8 | 6 5 ·60 | 0 11 12 ·87 |
| 26 | 0 20 56 ·42 | 2 16 2 ·3 | 16 2 ·5 | 5 46 ·99 | 0 15 9 ·43 |
| 27 | 0 24 34 ·38 | 2 39 31 ·6 | 16 2 ·2 | 5 28 ·40 | 0 19 5 ·98 |
| 28 | 0 28 12 ·37 | 3 2 57 ·8 | 16 1 ·9 | 5 9 ·84 | 0 23 2 ·53 |
| 29 | 0 31 50 ·41 | 3 26 20 ·4 | 16 1 ·7 | 4 51 ·32 | 0 26 59 ·08 |
| 30 | 0 35 28 ·51 | 3 49 39 ·3 | 16 1 ·4 | 4 32 ·87 | 0 30 55 ·63 |
| 31 | 0 39 6 ·70 | 4 12 54 ·0 | 16 1 ·1 | 4 14 ·52 | 0 34 52 ·19 |
| 32 | 0 42 45 ·01 | N. 4 36 4 ·2 | 16 0 ·8 | 3 56 ·27 | 0 38 48 ·74 |

The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. *Noon.* | THE SUN'S *Apparent* Latitude. *Noon.* | Logarithm of the Radius Vector of the Earth. *Noon.* | THE MOON'S Semidiameter. *Noon.* | THE MOON'S Semidiameter. *Midnight.* | THE MOON'S Horizontal Paralla *Noon.* | THE MOON'S Horizontal Paralla *Midn* |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ |
| 1 | 340 48 37·7 | S.0·07 | 9·9963017 | 16 7·6 | 16 9·1 | 59 10·7 | 59 1 |
| 2 | 341 48 45·8 | N.0·06 | 9·9964150 | 16 10·3 | 16 11·2 | 59 20·6 | 59 2 |
| 3 | 342 48 52·4 | 0·17 | 9·9965291 | 16 11·6 | 16 11·6 | 59 25·4 | 59 2 |
| 4 | 343 48 57·3 | 0·27 | 9·9966440 | 16 11·1 | 16 10·0 | 59 23·6 | 59 1 |
| 5 | 344 49 0·6 | 0·34 | 9·9967595 | 16 8·4 | 16 6·1 | 59 13·6 | 59 |
| 6 | 345 49 2·1 | 0·39 | 9·9968754 | 16 3·2 | 15 59·7 | 58 54·6 | 58 4 |
| 7 | 346 49 1·9 | 0·40 | 9·9969917 | 15 55·6 | 15 51·0 | 58 26·8 | 58 1 |
| 8 | 347 48 59·8 | 0·38 | 9·9971082 | 15 46·1 | 15 40·8 | 57 51·8 | 57 3 |
| 9 | 348 48 55·8 | 0·33 | 9·9972249 | 15 35·2 | 15 29·6 | 57 12·1 | 56 5 |
| 10 | 349 48 49·7 | 0·26 | 9·9973418 | 15 23·9 | 15 18·3 | 56 30·5 | 56 |
| 11 | 350 48 41·6 | 0·16 | 9·9974589 | 15 12·9 | 15 7·7 | 55 50·0 | 55 3 |
| 12 | 351 48 31·4 | N.0·04 | 9·9975762 | 15 3·0 | 14 58·8 | 55 13·7 | 54 5 |
| 13 | 352 48 18·9 | S.0·08 | 9·9976937 | 14 55·1 | 14 51·9 | 54 44·6 | 54 3 |
| 14 | 353 48 4·2 | 0·21 | 9·9978116 | 14 49·5 | 14 47·7 | 54 24·1 | 54 1 |
| 15 | 354 47 47·3 | 0·34 | 9·9979299 | 14 46·6 | 14 46·2 | 54 13·5 | 54 1 |
| 16 | 355 47 28·0 | 0·47 | 9·9980487 | 14 46·6 | 14 47·7 | 54 13·4 | 54 1 |
| 17 | 356 47 6·4 | 0·57 | 9·9981681 | 14 49·5 | 14 51·9 | 54 24·2 | 54 3 |
| 18 | 357 46 42·5 | 0·65 | 9·9982882 | 14 54·9 | 14 58·6 | 54 44·2 | 54 5 |
| 19 | 358 46 16·4 | 0·71 | 9·9984091 | 15 2·7 | 15 7·3 | 55 12·6 | 55 2 |
| 20 | 359 45 48·0 | 0·74 | 9·9985308 | 15 12·2 | 15 17·4 | 55 47·6 | 56 |
| 21 | 0 45 17·5 | 0·74 | 9·9986533 | 15 22·8 | 15 28·3 | 56 26·5 | 56 4 |
| 22 | 1 44 44·8 | 0·71 | 9·9987767 | 15 33·8 | 15 39·2 | 57 6·7 | 57 2 |
| 23 | 2 44 10·0 | 0·65 | 9·9989010 | 15 44·3 | 15 49·2 | 57 45·3 | 58 |
| 24 | 3 43 33·1 | 0·56 | 9·9990262 | 15 53·7 | 15 57·8 | 58 19·9 | 58 3 |
| 25 | 4 42 54·2 | 0·45 | 9·9991522 | 16 1·3 | 16 4·3 | 58 47·8 | 58 5 |
| 26 | 5 42 13·4 | 0·33 | 9·9992789 | 16 6·8 | 16 8·6 | 59 7·8 | 59 1 |
| 27 | 6 41 30·8 | 0·20 | 9·9994062 | 16 9·8 | 16 10·6 | 59 19·1 | 59 2 |
| 28 | 7 40 46·5 | S.0·06 | 9·9995341 | 16 10·9 | 16 10·7 | 59 23·0 | 59 2 |
| 29 | 8 40 0·3 | N.0·07 | 9·9996623 | 16 10·1 | 16 9·1 | 59 20·0 | 59 1 |
| 30 | 9 39 12·3 | 0·19 | 9·9997905 | 16 7·8 | 16 6·2 | 59 11·6 | 59 |
| 31 | 10 38 22·6 | 0·29 | 9·9999188 | 16 4·3 | 16 2·2 | 58 58·8 | 58 5 |
| 32 | 11 37 31·1 | N.0·37 | 0·0000469 | 15 59·8 | 15 57·3 | 58 42·4 | 58 3 |

## MEAN TIME.

## THE MOON'S

| Longitude. | | Latitude. | | Age. | Meridian Passage. |
|---|---|---|---|---|---|
| *Noon.* | *Midnight.* | *Noon.* | *Midnight.* | *Noon.* | |
| ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| 1 46 38 ·9 | 258 49 37 ·1 | N.1 6 46 ·9 | N.1 42 38 ·2 | 22 ·7 | 18 49 ·6 |
| 5 54 3 ·5 | 272 59 50 ·1 | 2 17 1 ·8 | 2 49 23 ·5 | 23 ·7 | 19 48 ·7 |
| 0 6 44 ·4 | 287 14 29 ·0 | 3 19 10 ·8 | 3 45 54 ·3 | 24 ·7 | 20 46 ·4 |
| 1 22 42 ·5 | 301 30 57 ·4 | 4 9 6 ·3 | 4 28 23 ·9 | 25 ·7 | 21 41 ·9 |
| 8 38 42 ·3 | 315 45 21 ·6 | 4 43 28 ·3 | 4 54 5 ·9 | 26 ·7 | 22 34 ·9 |
| 2 50 17 ·5 | 329 52 51 ·0 | 5 0 8 ·9 | 5 1 35 ·3 | 27 ·7 | 23 25 ·6 |
| 6 52 23 ·5 | 343 48 18 ·4 | 4 58 28 ·6 | 4 50 58 ·0 | 28 ·7 | ☌ |
| 0 40 3 ·3 | 357 27 10 ·7 | 4 39 17 ·6 | 4 23 45 ·9 | 0 ·2 | 0 14 ·7 |
| 4 9 19 ·0 | 10 46 14 ·2 | 4 4 44 ·2 | 3 42 36 ·3 | 1 ·2 | 1 2 ·6 |
| 7 17 49 ·1 | 23 44 4 ·3 | 3 17 47 ·7 | 2 50 44 ·1 | 2 ·2 | 1 50 ·1 |
| 0 5 7 ·1 | 36 21 12 ·1 | 2 21 51 ·5 | 1 51 34 ·9 | 3 ·2 | 2 37 ·6 |
| 2 32 39 ·4 | 48 39 54 ·7 | 1 20 18 ·0 | N.0 48 24 ·0 | 4 ·2 | 3 25 ·3 |
| 4 43 27 ·9 | 60 43 52 ·9 | N.0 16 14 ·0 | S.0 15 52 ·1 | 5 ·2 | 4 13 ·5 |
| 6 41 46 ·2 | 72 37 46 ·4 | S.0 47 35 ·8 | 1 18 39 ·3 | 6 ·2 | 5 2 ·0 |
| 8 32 33 ·5 | 84 26 48 ·3 | 1 48 46 ·2 | 2 17 40 ·6 | 7 ·2 | 5 50 ·4 |
| 0 21 11 ·9 | 96 16 24 ·7 | 2 45 7 ·1 | 3 10 50 ·2 | 8 ·2 | 6 38 ·6 |
| 2 13 6 ·2 | 108 11 54 ·3 | 3 34 35 ·4 | 3 56 7 ·6 | 9 ·2 | 7 26 ·3 |
| 4 13 24 ·9 | 120 18 10 ·6 | 4 15 11 ·8 | 4 31 32 ·8 | 10 ·2 | 8 13 ·3 |
| 6 26 40 ·8 | 132 39 20 ·8 | 4 44 56 ·1 | 4 55 7 ·1 | 11 ·2 | 8 59 ·7 |
| 8 56 31 ·0 | 145 18 26 ·3 | 5 1 52 ·5 | 5 4 59 ·4 | 12 ·2 | 9 45 ·8 |
| 1 45 16 ·0 | 158 17 2 ·8 | 5 4 17 ·0 | 4 59 37 ·0 | 13 ·2 | 10 32 ·1 |
| 4 53 43 ·6 | 171 35 8 ·9 | 4 50 53 ·8 | 4 38 5 ·7 | 14 ·2 | 11 19 ·1 |
| 8 21 3 ·5 | 185 11 7 ·0 | 4 21 15 ·1 | 4 0 29 ·2 | 15 ·2 | 12 7 ·6 |
| 2 4 55 ·0 | 199 1 59 ·6 | 3 36 0 ·1 | 3 8 5 ·3 | 16 ·2 | 12 58 ·2 |
| 6 1 51 ·2 | 213 3 59 ·2 | 2 37 7 ·4 | 2 3 33 ·2 | 17 ·2 | 13 51 ·4 |
| 0 7 53 ·8 | 227 13 6 ·0 | 1 27 54 ·3 | S.0 50 44 ·0 | 18 ·2 | 14 47 ·2 |
| 4 19 9 ·5 | 241 25 40 ·7 | S.0 12 39 ·6 | N.0 25 41 ·2 | 19 ·2 | 15 45 ·4 |
| 8 32 18 ·9 | 255 38 46 ·4 | N.1 3 40 ·6 | 1 40 41 ·0 | 20 ·2 | 16 44 ·7 |
| 2 44 48 ·3 | 269 50 11 ·8 | 2 16 5 ·9 | 2 49 22 ·2 | 21 ·2 | 17 43 ·8 |
| 6 54 46 ·0 | 283 58 20 ·6 | 3 19 58 ·6 | 3 47 27 ·1 | 22 ·2 | 18 41 ·3 |
| 1 0 46 ·0 | 298 1 51 ·8 | 4 11 23 ·9 | 4 31 28 ·9 | 23 ·2 | 19 36 ·5 |
| 5 1 27 ·5 | 311 59 20 ·8 | N.4 47 26 ·0 | N.4 59 3 ·3 | 24 ·2 | 20 29 ·0 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 16 41 40 ·40 | S. 21 6 50 ·9 | 16 ·18 |
| 1 | 16 44 11 ·67 | 21 8 28 ·0 | 14 ·80 |
| 2 | 16 46 43 ·03 | 21 9 56 ·8 | 13 ·38 |
| 3 | 16 49 14 ·48 | 21 11 17 ·1 | 11 ·98 |
| 4 | 16 51 46 ·02 | 21 12 29 ·0 | 10 ·58 |
| 5 | 16 54 17 ·63 | 21 13 32 ·5 | 9 ·18 |
| 6 | 16 56 49 ·32 | 21 14 27 ·6 | 7 ·77 |
| 7 | 16 59 21 ·07 | 21 15 14 ·2 | 6 ·35 |
| 8 | 17 1 52 ·89 | 21 15 52 ·3 | 4 ·93 |
| 9 | 17 4 24 ·77 | 21 16 21 ·9 | 3 ·52 |
| 10 | 17 6 56 ·69 | 21 16 43 ·0 | 2 ·10 |
| 11 | 17 9 28 ·66 | 21 16 55 ·6 | 0 ·68 |
| 12 | 17 12 0 ·68 | 21 16 59 ·7 | 0 ·75 |
| 13 | 17 14 32 ·73 | 21 16 55 ·2 | 2 ·17 |
| 14 | 17 17 4 ·82 | 21 16 42 ·2 | 3 ·58 |
| 15 | 17 19 36 ·93 | 21 16 20 ·7 | 5 ·00 |
| 16 | 17 22 9 ·05 | 21 15 50 ·7 | 6 ·43 |
| 17 | 17 24 41 ·20 | 21 15 12 ·1 | 7 ·85 |
| 18 | 17 27 13 ·35 | 21 14 25 ·0 | 9 ·28 |
| 19 | 17 29 45 ·51 | 21 13 29 ·3 | 10 ·70 |
| 20 | 17 32 17 ·66 | 21 12 25 ·1 | 12 ·12 |
| 21 | 17 34 49 ·81 | 21 11 12 ·4 | 13 ·53 |
| 22 | 17 37 21 ·95 | 21 9 51 ·2 | 14 ·97 |
| 23 | 17 39 54 ·07 | S. 21 8 21 ·4 | 16 ·37 |
| | *SUNDAY* 2. | | |
| 0 | 17 42 26 ·16 | S. 21 6 43 ·2 | 17 ·78 |
| 1 | 17 44 58 ·23 | 21 4 56 ·5 | 19 ·20 |
| 2 | 17 47 30 ·26 | 21 3 1 ·3 | 20 ·62 |
| 3 | 17 50 2 ·26 | 21 0 57 ·6 | 22 ·03 |
| 4 | 17 52 34 ·21 | 20 58 45 ·4 | 23 ·42 |
| 5 | 17 55 6 ·11 | 20 56 24 ·9 | 24 ·83 |
| 6 | 17 57 37 ·95 | 20 53 55 ·9 | 26 ·23 |
| 7 | 18 0 9 ·74 | 20 51 18 ·5 | 27 ·62 |
| 8 | 18 2 41 ·46 | 20 48 32 ·8 | 29 ·02 |
| 9 | 18 5 13 ·11 | 20 45 38 ·7 | 30 ·40 |
| 10 | 18 7 44 ·69 | 20 42 36 ·3 | 31 ·78 |
| 11 | 18 10 16 ·19 | 20 39 25 ·6 | 33 ·17 |
| 12 | 18 12 47 ·60 | 20 36 6 ·6 | 34 ·53 |
| 13 | 18 15 18 ·93 | 20 32 39 ·4 | 35 ·92 |
| 14 | 18 17 50 ·16 | 20 29 3 ·9 | 37 ·28 |
| 15 | 18 20 21 ·29 | 20 25 20 ·2 | 38 ·63 |
| 16 | 18 22 52 ·31 | 20 21 28 ·4 | 39 ·98 |
| 17 | 18 25 23 ·23 | 20 17 28 ·5 | 41 ·33 |
| 18 | 18 27 54 ·03 | 20 13 20 ·5 | 42 ·68 |
| 19 | 18 30 24 ·72 | 20 9 4 ·4 | 44 ·02 |
| 20 | 18 32 55 ·28 | 20 4 40 ·3 | 45 ·35 |
| 21 | 18 35 25 ·72 | 20 0 8 ·2 | 46 ·68 |
| 22 | 18 37 56 ·02 | 19 55 28 ·1 | 47 ·98 |
| 23 | 18 40 26 ·19 | 19 50 40 ·2 | 49 ·30 |
| 24 | 18 42 56 ·22 | S. 19 45 44 ·4 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *MONDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 18 42 56 ·22 | S. 19 45 44 ·4 |
| 1 | 18 45 26 ·10 | 19 40 40 ·8 |
| 2 | 18 47 55 ·84 | 19 35 29 ·4 |
| 3 | 18 50 25 ·43 | 19 30 10 ·2 |
| 4 | 18 52 54 ·86 | 19 24 43 ·4 |
| 5 | 18 55 24 ·13 | 19 19 8 ·9 |
| 6 | 18 57 53 ·24 | 19 13 26 ·9 |
| 7 | 19 0 22 ·18 | 19 7 37 ·3 |
| 8 | 19 2 50 ·95 | 19 1 40 ·2 |
| 9 | 19 5 19 ·55 | 18 55 35 ·7 |
| 10 | 19 7 47 ·97 | 18 49 23 ·9 |
| 11 | 19 10 16 ·21 | 18 43 4 ·7 |
| 12 | 19 12 44 ·27 | 18 36 38 ·2 |
| 13 | 19 15 12 ·14 | 18 30 4 ·5 |
| 14 | 19 17 39 ·83 | 18 23 23 ·7 |
| 15 | 19 20 7 ·32 | 18 16 35 ·8 |
| 16 | 19 22 34 ·62 | 18 9 40 ·8 |
| 17 | 19 25 1 ·72 | 18 2 38 ·8 |
| 18 | 19 27 28 ·62 | 17 55 30 ·0 |
| 19 | 19 29 55 ·32 | 17 48 14 ·3 |
| 20 | 19 32 21 ·81 | 17 40 51 ·8 |
| 21 | 19 34 48 ·09 | 17 33 22 ·5 |
| 22 | 19 37 14 ·17 | 17 25 46 ·6 |
| 23 | 19 39 40 ·03 | S. 17 18 4 ·1 |
| | *TUESDAY* 4. | |
| 0 | 19 42 5 ·68 | S. 17 10 15 ·1 |
| 1 | 19 44 31 ·11 | 17 2 19 ·6 |
| 2 | 19 46 56 ·33 | 16 54 17 ·7 |
| 3 | 19 49 21 ·33 | 16 46 9 ·5 |
| 4 | 19 51 46 ·10 | 16 37 55 ·0 |
| 5 | 19 54 10 ·66 | 16 29 34 ·3 |
| 6 | 19 56 34 ·99 | 16 21 7 ·5 |
| 7 | 19 58 59 ·09 | 16 12 34 ·6 |
| 8 | 20 1 22 ·97 | 16 3 55 ·8 |
| 9 | 20 3 46 ·62 | 15 55 11 ·0 |
| 10 | 20 6 10 ·04 | 15 46 20 ·4 |
| 11 | 20 8 33 ·23 | 15 37 24 ·1 |
| 12 | 20 10 56 ·19 | 15 28 22 ·0 |
| 13 | 20 13 18 ·92 | 15 19 14 ·3 |
| 14 | 20 15 41 ·42 | 15 10 1 ·1 |
| 15 | 20 18 3 ·68 | 15 0 42 ·5 |
| 16 | 20 20 25 ·71 | 14 51 18 ·4 |
| 17 | 20 22 47 ·50 | 14 41 49 ·1 |
| 18 | 20 25 9 ·06 | 14 32 14 ·5 |
| 19 | 20 27 30 ·38 | 14 22 34 ·7 |
| 20 | 20 29 51 ·47 | 14 12 49 ·9 |
| 21 | 20 32 12 ·33 | 14 3 0 ·0 |
| 22 | 20 34 32 ·95 | 13 53 5 ·2 |
| 23 | 20 36 53 ·33 | 13 43 5 ·6 |
| 24 | 20 39 13 ·48 | S. 13 33 1 ·2 |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|
| *WEDNESDAY* 5. | | | | *FRIDAY* 7. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 9 13 ·48 | S. 13 33 1 ·2 | 101 ·52 | 0 | 22 27 1 ·93 | S. 4 22 16 ·2 | 123 ·28 |
| 1 33 ·39 | 13 22 52 ·1 | 102 ·28 | 1 | 22 29 11 ·94 | 4 9 56 ·5 | 123 ·42 |
| 3 53 ·07 | 13 12 38 ·4 | 103 ·03 | 2 | 22 31 21 ·79 | 3 57 36 ·0 | 123 ·53 |
| 6 12 ·52 | 13 2 20 ·2 | 103 ·78 | 3 | 22 33 31 ·49 | 3 45 14 ·8 | 123 ·65 |
| 8 31 ·73 | 12 51 57 ·5 | 104 ·50 | 4 | 22 35 41 ·03 | 3 32 52 ·9 | 123 ·73 |
| 0 50 ·70 | 12 41 30 ·5 | 105 ·22 | 5 | 22 37 50 ·41 | 3 20 30 ·5 | 123 ·82 |
| 3 9 ·45 | 12 30 59 ·2 | 105 ·93 | 6 | 22 39 59 ·65 | 3 8 7 ·6 | 123 ·88 |
| 5 27 ·96 | 12 20 23 ·6 | 106 ·62 | 7 | 22 42 8 ·74 | 2 55 44 ·3 | 123 ·93 |
| 7 46 ·24 | 12 9 43 ·9 | 107 ·28 | 8 | 22 44 17 ·68 | 2 43 20 ·7 | 123 ·98 |
| 0 4 ·29 | 11 59 0 ·2 | 107 ·95 | 9 | 22 46 26 ·48 | 2 30 56 ·8 | 124 ·02 |
| 2 22 ·10 | 11 48 12 ·5 | 108 ·60 | 10 | 22 48 35 ·15 | 2 18 32 ·7 | 124 ·03 |
| 4 39 ·69 | 11 37 20 ·9 | 109 ·23 | 11 | 22 50 43 ·67 | 2 6 8 ·5 | 124 ·03 |
| 6 57 ·05 | 11 26 25 ·5 | 109 ·85 | 12 | 22 52 52 ·06 | 1 53 44 ·3 | 124 ·03 |
| 9 14 ·18 | 11 15 26 ·4 | 110 ·47 | 13 | 22 55 0 ·32 | 1 41 20 ·1 | 124 ·02 |
| 1 31 ·09 | 11 4 23 ·6 | 111 ·05 | 14 | 22 57 8 ·45 | 1 28 56 ·0 | 124 ·00 |
| 3 47 ·77 | 10 53 17 ·3 | 111 ·65 | 15 | 22 59 16 ·45 | 1 16 32 ·0 | 123 ·95 |
| 6 4 ·22 | 10 42 7 ·4 | 112 ·20 | 16 | 23 1 24 ·32 | 1 4 8 ·3 | 123 ·90 |
| 8 20 ·46 | 10 30 54 ·2 | 112 ·75 | 17 | 23 3 32 ·07 | 0 51 44 ·9 | 123 ·83 |
| 0 36 ·47 | 10 19 37 ·7 | 113 ·30 | 18 | 23 5 39 ·71 | 0 39 21 ·9 | 123 ·77 |
| 2 52 ·26 | 10 8 17 ·9 | 113 ·83 | 19 | 23 7 47 ·22 | 0 26 59 ·3 | 123 ·67 |
| 5 7 ·83 | 9 56 54 ·9 | 114 ·33 | 20 | 23 9 54 ·62 | 0 14 37 ·3 | 123 ·58 |
| 7 23 ·18 | 9 45 28 ·9 | 114 ·85 | 21 | 23 12 1 ·90 | S. 0 2 15 ·8 | 123 ·47 |
| 9 38 ·32 | 9 33 59 ·8 | 115 ·32 | 22 | 23 14 9 ·07 | N. 0 10 5 ·0 | 123 ·35 |
| 1 53 ·24 | S. 9 22 27 ·9 | 115 ·80 | 23 | 23 16 16 ·14 | N. 0 22 25 ·1 | 123 ·22 |
| *THURSDAY* 6. | | | | *SATURDAY* 8. | | |
| 4 7 ·95 | S. 9 10 53 ·1 | 116 ·25 | 0 | 23 18 23 ·10 | N. 0 34 44 ·4 | 123 ·08 |
| 6 22 ·45 | 8 59 15 ·6 | 116 ·72 | 1 | 23 20 29 ·96 | 0 47 2 ·9 | 122 ·92 |
| 8 36 ·74 | 8 47 35 ·3 | 117 ·13 | 2 | 23 22 36 ·71 | 0 59 20 ·4 | 122 ·75 |
| 0 50 ·82 | 8 35 52 ·5 | 117 ·55 | 3 | 23 24 43 ·37 | 1 11 36 ·9 | 122 ·58 |
| 3 4 ·70 | 8 24 7 ·2 | 117 ·97 | 4 | 23 26 49 ·94 | 1 23 52 ·4 | 122 ·40 |
| 5 18 ·37 | 8 12 19 ·4 | 118 ·35 | 5 | 23 28 56 ·41 | 1 36 6 ·8 | 122 ·20 |
| 7 31 ·84 | 8 0 29 ·3 | 118 ·73 | 6 | 23 31 2 ·79 | 1 48 20 ·0 | 121 ·98 |
| 9 45 ·10 | 7 48 36 ·9 | 119 ·08 | 7 | 23 33 9 ·08 | 2 0 31 ·9 | 121 ·77 |
| 1 58 ·17 | 7 36 42 ·4 | 119 ·45 | 8 | 23 35 15 ·28 | 2 12 42 ·5 | 121 ·53 |
| 4 11 ·04 | 7 24 45 ·7 | 119 ·78 | 9 | 23 37 21 ·40 | 2 24 51 ·7 | 121 ·30 |
| 6 23 ·72 | 7 12 47 ·0 | 120 ·12 | 10 | 23 39 27 ·44 | 2 36 59 ·5 | 121 ·05 |
| 8 36 ·20 | 7 0 46 ·3 | 120 ·42 | 11 | 23 41 33 ·40 | 2 49 5 ·8 | 120 ·78 |
| 0 48 ·50 | 6 48 43 ·8 | 120 ·72 | 12 | 23 43 39 ·29 | 3 1 10 ·5 | 120 ·52 |
| 3 0 ·60 | 6 36 39 ·5 | 121 ·02 | 13 | 23 45 45 ·10 | 3 13 13 ·6 | 120 ·23 |
| 5 12 ·52 | 6 24 33 ·4 | 121 ·27 | 14 | 23 47 50 ·84 | 3 25 15 ·0 | 119 ·93 |
| 7 24 ·26 | 6 12 25 ·8 | 121 ·53 | 15 | 23 49 56 ·51 | 3 37 14 ·6 | 119 ·63 |
| 9 35 ·81 | 6 0 16 ·6 | 121 ·78 | 16 | 23 52 2 ·12 | 3 49 12 ·4 | 119 ·32 |
| 1 47 ·18 | 5 48 5 ·9 | 122 ·02 | 17 | 23 54 7 ·66 | 4 1 8 ·3 | 119 ·00 |
| 3 58 ·38 | 5 35 53 ·8 | 122 ·23 | 18 | 23 56 13 ·13 | 4 13 2 ·3 | 118 ·67 |
| 6 9 ·40 | 5 23 40 ·4 | 122 ·45 | 19 | 23 58 18 ·55 | 4 24 54 ·3 | 118 ·33 |
| 8 20 ·24 | 5 11 25 ·7 | 122 ·63 | 20 | 0 0 23 ·91 | 4 36 44 ·3 | 117 ·98 |
| 0 30 ·91 | 4 59 9 ·9 | 122 ·82 | 21 | 0 2 29 ·21 | 4 48 32 ·2 | 117 ·62 |
| 2 41 ·42 | 4 46 53 ·0 | 122 ·98 | 22 | 0 4 34 ·46 | 5 0 17 ·9 | 117 ·23 |
| 4 51 ·76 | 4 34 35 ·1 | 123 ·15 | 23 | 0 6 39 ·66 | 5 12 1 ·3 | 116 ·87 |
| 7 1 ·93 | S. 4 22 16 ·2 | | 24 | 0 8 44 ·81 | N. 5 23 42 ·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 8 44 ·81 | N. 5 23 42 ·5 | 116 ·47 |
| 1 | 0 10 49 ·91 | 5 35 21 ·3 | 116 ·08 |
| 2 | 0 12 54 ·97 | 5 46 57 ·8 | 115 ·67 |
| 3 | 0 14 59 ·99 | 5 58 31 ·8 | 115 ·25 |
| 4 | 0 17 4 ·97 | 6 10 3 ·3 | 114 ·83 |
| 5 | 0 19 9 ·91 | 6 21 32 ·3 | 114 ·38 |
| 6 | 0 21 14 ·81 | 6 32 58 ·6 | 113 ·95 |
| 7 | 0 23 19 ·68 | 6 44 22 ·3 | 113 ·50 |
| 8 | 0 25 24 ·52 | 6 55 43 ·3 | 113 ·03 |
| 9 | 0 27 29 ·32 | 7 7 1 ·5 | 112 ·55 |
| 10 | 0 29 34 ·10 | 7 18 16 ·8 | 112 ·08 |
| 11 | 0 31 38 ·85 | 7 29 29 ·3 | 111 ·60 |
| 12 | 0 33 43 ·58 | 7 40 38 ·9 | 111 ·10 |
| 13 | 0 35 48 ·29 | 7 51 45 ·5 | 110 ·60 |
| 14 | 0 37 52 ·97 | 8 2 49 ·1 | 110 ·08 |
| 15 | 0 39 57 ·64 | 8 13 49 ·6 | 109 ·57 |
| 16 | 0 42 2 ·29 | 8 24 47 ·0 | 109 ·03 |
| 17 | 0 44 6 ·93 | 8 35 41 ·2 | 108 ·50 |
| 18 | 0 46 11 ·55 | 8 46 32 ·2 | 107 ·95 |
| 19 | 0 48 16 ·16 | 8 57 19 ·9 | 107 ·40 |
| 20 | 0 50 20 ·76 | 9 8 4 ·3 | 106 ·83 |
| 21 | 0 52 25 ·36 | 9 18 45 ·3 | 106 ·27 |
| 22 | 0 54 29 ·95 | 9 29 22 ·9 | 105 ·70 |
| 23 | 0 56 34 ·53 | N. 9 39 57 ·1 | 105 ·12 |
| | *MONDAY* 10. | | |
| 0 | 0 58 39 ·11 | N. 9 50 27 ·8 | 104 ·52 |
| 1 | 1 0 43 ·69 | 10 0 54 ·9 | 103 ·92 |
| 2 | 1 2 48 ·27 | 10 11 18 ·4 | 103 ·32 |
| 3 | 1 4 52 ·86 | 10 21 38 ·3 | 102 ·70 |
| 4 | 1 6 57 ·45 | 10 31 54 ·5 | 102 ·08 |
| 5 | 1 9 2 ·04 | 10 42 7 ·0 | 101 ·45 |
| 6 | 1 11 6 ·64 | 10 52 15 ·7 | 100 ·82 |
| 7 | 1 13 11 ·25 | 11 2 20 ·6 | 100 ·18 |
| 8 | 1 15 15 ·86 | 11 12 21 ·7 | 99 ·53 |
| 9 | 1 17 20 ·49 | 11 22 18 ·9 | 98 ·87 |
| 10 | 1 19 25 ·12 | 11 32 12 ·1 | 98 ·22 |
| 11 | 1 21 29 ·77 | 11 42 1 ·4 | 97 ·53 |
| 12 | 1 23 34 ·44 | 11 51 46 ·6 | 96 ·87 |
| 13 | 1 25 39 ·12 | 12 1 27 ·8 | 96 ·18 |
| 14 | 1 27 43 ·82 | 12 11 4 ·9 | 95 ·50 |
| 15 | 1 29 48 ·54 | 12 20 37 ·9 | 94 ·80 |
| 16 | 1 31 53 ·27 | 12 30 6 ·7 | 94 ·10 |
| 17 | 1 33 58 ·03 | 12 39 31 ·3 | 93 ·40 |
| 18 | 1 36 2 ·81 | 12 48 51 ·7 | 92 ·68 |
| 19 | 1 38 7 ·61 | 12 58 7 ·8 | 91 ·95 |
| 20 | 1 40 12 ·44 | 13 7 19 ·5 | 91 ·23 |
| 21 | 1 42 17 ·29 | 13 16 26 ·9 | 90 ·50 |
| 22 | 1 44 22 ·16 | 13 25 29 ·9 | 89 ·77 |
| 23 | 1 46 27 ·06 | 13 34 28 ·5 | 89 ·03 |
| 24 | 1 48 31 ·99 | N. 13 43 22 ·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 48 31 ·99 | N. 13 43 22 ·7 | 88 ·21 |
| 1 | 1 50 36 ·95 | 13 52 12 ·4 | 87 ·32 |
| 2 | 1 52 41 ·94 | 14 0 57 ·5 | 86 ·75 |
| 3 | 1 54 46 ·96 | 14 9 38 ·0 | 86 ·00 |
| 4 | 1 56 52 ·01 | 14 18 14 ·0 | 85 ·22 |
| 5 | 1 58 57 ·09 | 14 26 45 ·3 | 84 ·45 |
| 6 | 2 1 2 ·21 | 14 35 12 ·0 | 83 ·67 |
| 7 | 2 3 7 ·35 | 14 43 34 ·0 | 82 ·87 |
| 8 | 2 5 12 ·53 | 14 51 51 ·2 | 82 ·08 |
| 9 | 2 7 17 ·75 | 15 0 3 ·7 | 81 ·28 |
| 10 | 2 9 23 ·00 | 15 8 11 ·5 | 80 ·48 |
| 11 | 2 11 28 ·28 | 15 16 14 ·4 | 79 ·67 |
| 12 | 2 13 33 ·60 | 15 24 12 ·4 | 78 ·87 |
| 13 | 2 15 38 ·96 | 15 32 5 ·6 | 78 ·03 |
| 14 | 2 17 44 ·35 | 15 39 53 ·8 | 77 ·22 |
| 15 | 2 19 49 ·78 | 15 47 37 ·1 | 76 ·40 |
| 16 | 2 21 55 ·25 | 15 55 15 ·5 | 75 ·57 |
| 17 | 2 24 0 ·75 | 16 2 48 ·9 | 74 ·72 |
| 18 | 2 26 6 ·29 | 16 10 17 ·2 | 73 ·88 |
| 19 | 2 28 11 ·87 | 16 17 40 ·5 | 73 ·03 |
| 20 | 2 30 17 ·49 | 16 24 58 ·8 | 72 ·20 |
| 21 | 2 32 23 ·15 | 16 32 12 ·0 | 71 ·33 |
| 22 | 2 34 28 ·85 | 16 39 20 ·0 | 70 ·48 |
| 23 | 2 36 34 ·58 | N. 16 46 22 ·9 | 69 ·62 |
| | *WEDNESDAY* 12. | | |
| 0 | 2 38 40 ·36 | N. 16 53 20 ·6 | 68 ·75 |
| 1 | 2 40 46 ·18 | 17 0 13 ·1 | 67 ·90 |
| 2 | 2 42 52 ·03 | 17 7 0 ·5 | 67 ·02 |
| 3 | 2 44 57 ·92 | 17 13 42 ·6 | 66 ·13 |
| 4 | 2 47 3 ·85 | 17 20 19 ·4 | 65 ·25 |
| 5 | 2 49 9 ·83 | 17 26 50 ·9 | 64 ·37 |
| 6 | 2 51 15 ·84 | 17 33 17 ·1 | 63 ·48 |
| 7 | 2 53 21 ·89 | 17 39 38 ·0 | 62 ·60 |
| 8 | 2 55 27 ·98 | 17 45 53 ·6 | 61 ·68 |
| 9 | 2 57 34 ·10 | 17 52 3 ·7 | 60 ·80 |
| 10 | 2 59 40 ·27 | 17 58 8 ·5 | 59 ·90 |
| 11 | 3 1 46 ·47 | 18 4 7 ·9 | 58 ·98 |
| 12 | 3 3 52 ·71 | 18 10 1 ·8 | 58 ·08 |
| 13 | 3 5 58 ·99 | 18 15 50 ·3 | 57 ·15 |
| 14 | 3 8 5 ·30 | 18 21 33 ·2 | 56 ·25 |
| 15 | 3 10 11 ·65 | 18 27 10 ·7 | 55 ·33 |
| 16 | 3 12 18 ·04 | 18 32 42 ·7 | 54 ·42 |
| 17 | 3 14 24 ·47 | 18 38 9 ·2 | 53 ·48 |
| 18 | 3 16 30 ·93 | 18 43 30 ·1 | 52 ·55 |
| 19 | 3 18 37 ·42 | 18 48 45 ·4 | 51 ·63 |
| 20 | 3 20 43 ·95 | 18 53 55 ·2 | 50 ·68 |
| 21 | 3 22 50 ·51 | 18 58 59 ·3 | 49 ·77 |
| 22 | 3 24 57 ·10 | 19 3 57 ·9 | 48 ·82 |
| 23 | 3 27 3 ·73 | 19 8 50 ·8 | 47 ·88 |
| 24 | 3 29 10 ·39 | N. 19 13 38 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10$^{m}$. |
|---|---|---|---|
| | *THURSDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 29 10 ·39 | N.19 13 38 ·1 | 46 ·93 |
| 1 | 3 31 17 ·08 | 19 18 19 ·7 | 46 ·00 |
| 2 | 3 33 23 ·80 | 19 22 55 ·7 | 45 ·05 |
| 3 | 3 35 30 ·56 | 19 27 26 ·0 | 44 ·08 |
| 4 | 3 37 37 ·34 | 19 31 50 ·5 | 43 ·15 |
| 5 | 3 39 44 ·15 | 19 36 9 ·4 | 42 ·18 |
| 6 | 3 41 50 ·99 | 19 40 22 ·5 | 41 ·23 |
| 7 | 3 43 57 ·85 | 19 44 29 ·9 | 40 ·27 |
| 8 | 3 46 4 ·74 | 19 48 31 ·5 | 39 ·32 |
| 9 | 3 48 11 ·66 | 19 52 27 ·4 | 38 ·35 |
| 10 | 3 50 18 ·60 | 19 56 17 ·5 | 37 ·38 |
| 11 | 3 52 25 ·56 | 20 0 1 ·8 | 36 ·42 |
| 12 | 3 54 32 ·55 | 20 3 40 ·3 | 35 ·45 |
| 13 | 3 56 39 ·56 | 20 7 13 ·0 | 34 ·48 |
| 14 | 3 58 46 ·59 | 20 10 39 ·9 | 33 ·50 |
| 15 | 4 0 53 ·64 | 20 14 0 ·9 | 32 ·53 |
| 16 | 4 3 0 ·70 | 20 17 16 ·1 | 31 ·57 |
| 17 | 4 5 7 ·79 | 20 20 25 ·5 | 30 ·58 |
| 18 | 4 7 14 ·89 | 20 23 29 ·0 | 29 ·62 |
| 19 | 4 9 22 ·00 | 20 26 26 ·7 | 28 ·63 |
| 20 | 4 11 29 ·14 | 20 29 18 ·5 | 27 ·65 |
| 21 | 4 13 36 ·28 | 20 32 4 ·4 | 26 ·67 |
| 22 | 4 15 43 ·43 | 20 34 44 ·4 | 25 ·68 |
| 23 | 4 17 50 ·60 | N.20 37 18 ·5 | 24 ·72 |
| | *FRIDAY* 14. | | |
| 0 | 4 19 57 ·78 | N.20 39 46 ·8 | 23 ·73 |
| 1 | 4 22 4 ·97 | 20 42 9 ·2 | 22 ·73 |
| 2 | 4 24 12 ·16 | 20 44 25 ·6 | 21 ·77 |
| 3 | 4 26 19 ·36 | 20 46 36 ·2 | 20 ·77 |
| 4 | 4 28 26 ·57 | 20 48 40 ·8 | 19 ·78 |
| 5 | 4 30 33 ·79 | 20 50 39 ·5 | 18 ·80 |
| 6 | 4 32 41 ·00 | 20 52 32 ·3 | 17 ·82 |
| 7 | 4 34 48 ·22 | 20 54 19 ·2 | 16 ·82 |
| 8 | 4 36 55 ·43 | 20 56 0 ·1 | 15 ·83 |
| 9 | 4 39 2 ·65 | 20 57 35 ·1 | 14 ·85 |
| 10 | 4 41 9 ·86 | 20 59 4 ·2 | 13 ·85 |
| 11 | 4 43 17 ·07 | 21 0 27 ·3 | 12 ·87 |
| 12 | 4 45 24 ·28 | 21 1 44 ·5 | 11 ·87 |
| 13 | 4 47 31 ·48 | 21 2 55 ·7 | 10 ·88 |
| 14 | 4 49 38 ·67 | 21 4 1 ·0 | 9 ·90 |
| 15 | 4 51 45 ·86 | 21 5 0 ·4 | 8 ·90 |
| 16 | 4 53 53 ·04 | 21 5 53 ·8 | 7 ·92 |
| 17 | 4 56 0 ·20 | 21 6 41 ·3 | 6 ·92 |
| 18 | 4 58 7 ·36 | 21 7 22 ·8 | 5 ·93 |
| 19 | 5 0 14 ·50 | 21 7 58 ·4 | 4 ·93 |
| 20 | 5 2 21 ·63 | 21 8 28 ·0 | 3 ·95 |
| 21 | 5 4 28 ·74 | 21 8 51 ·7 | 2 ·97 |
| 22 | 5 6 35 ·84 | 21 9 9 ·5 | 1 ·97 |
| 23 | 5 8 42 ·92 | 21 9 21 ·3 | 0 ·98 |
| 24 | 5 10 49 ·98 | N.21 9 27 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10$^{m}$. |
|---|---|---|---|
| | *SATURDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 10 49 ·98 | N.21 9 27 ·2 | 0 ·00 |
| 1 | 5 12 57 ·02 | 21 9 27 ·2 | 1 ·00 |
| 2 | 5 15 4 ·04 | 21 9 21 ·2 | 1 ·98 |
| 3 | 5 17 11 ·03 | 21 9 9 ·3 | 2 ·97 |
| 4 | 5 19 18 ·00 | 21 8 51 ·5 | 3 ·95 |
| 5 | 5 21 24 ·95 | 21 8 27 ·8 | 4 ·93 |
| 6 | 5 23 31 ·86 | 21 7 58 ·2 | 5 ·92 |
| 7 | 5 25 38 ·75 | 21 7 22 ·7 | 6 ·92 |
| 8 | 5 27 45 ·62 | 21 6 41 ·2 | 7 ·88 |
| 9 | 5 29 52 ·45 | 21 5 53 ·9 | 8 ·87 |
| 10 | 5 31 59 ·25 | 21 5 0 ·7 | 9 ·85 |
| 11 | 5 34 6 ·02 | 21 4 1 ·6 | 10 ·83 |
| 12 | 5 36 12 ·75 | 21 2 56 ·6 | 11 ·82 |
| 13 | 5 38 19 ·45 | 21 1 45 ·7 | 12 ·78 |
| 14 | 5 40 26 ·11 | 21 0 29 ·0 | 13 ·77 |
| 15 | 5 42 32 ·74 | 20 59 6 ·4 | 14 ·73 |
| 16 | 5 44 39 ·33 | 20 57 38 ·0 | 15 ·70 |
| 17 | 5 46 45 ·88 | 20 56 3 ·8 | 16 ·68 |
| 18 | 5 48 52 ·39 | 20 54 23 ·7 | 17 ·65 |
| 19 | 5 50 58 ·86 | 20 52 37 ·8 | 18 ·63 |
| 20 | 5 53 5 ·28 | 20 50 46 ·0 | 19 ·58 |
| 21 | 5 55 11 ·66 | 20 48 48 ·5 | 20 ·55 |
| 22 | 5 57 18 ·00 | 20 46 45 ·2 | 21 ·52 |
| 23 | 5 59 24 ·29 | N.20 44 36 ·1 | 22 ·48 |
| | *SUNDAY* 16. | | |
| 0 | 6 1 30 ·54 | N.20 42 21 ·2 | 23 ·43 |
| 1 | 6 3 36 ·74 | 20 40 0 ·6 | 24 ·40 |
| 2 | 6 5 42 ·89 | 20 37 34 ·2 | 25 ·35 |
| 3 | 6 7 49 ·00 | 20 35 2 ·1 | 26 ·32 |
| 4 | 6 9 55 ·05 | 20 32 24 ·2 | 27 ·27 |
| 5 | 6 12 1 ·05 | 20 29 40 ·6 | 28 ·20 |
| 6 | 6 14 7 ·00 | 20 26 51 ·4 | 29 ·17 |
| 7 | 6 16 12 ·90 | 20 23 56 ·4 | 30 ·12 |
| 8 | 6 18 18 ·75 | 20 20 55 ·7 | 31 ·05 |
| 9 | 6 20 24 ·54 | 20 17 49 ·4 | 31 ·98 |
| 10 | 6 22 30 ·27 | 20 14 37 ·5 | 32 ·95 |
| 11 | 6 24 35 ·95 | 20 11 19 ·8 | 33 ·87 |
| 12 | 6 26 41 ·58 | 20 7 56 ·6 | 34 ·82 |
| 13 | 6 28 47 ·15 | 20 4 27 ·7 | 35 ·73 |
| 14 | 6 30 52 ·66 | 20 0 53 ·3 | 36 ·68 |
| 15 | 6 32 58 ·11 | 19 57 13 ·2 | 37 ·60 |
| 16 | 6 35 3 ·51 | 19 53 27 ·6 | 38 ·53 |
| 17 | 6 37 8 ·84 | 19 49 36 ·4 | 39 ·45 |
| 18 | 6 39 14 ·12 | 19 45 39 ·7 | 40 ·38 |
| 19 | 6 41 19 ·33 | 19 41 37 ·4 | 41 ·28 |
| 20 | 6 43 24 ·48 | 19 37 29 ·7 | 42 ·22 |
| 21 | 6 45 29 ·57 | 19 33 16 ·4 | 43 ·12 |
| 22 | 6 47 34 ·60 | 19 28 57 ·7 | 44 ·03 |
| 23 | 6 49 39 ·57 | 19 24 33 ·5 | 44 ·93 |
| 24 | 6 51 44 ·48 | N.19 20 3 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 51 44 ·48 | N.19 20 3 ·9 | 45 ·83 |
| 1 | 6 53 49 ·32 | 19 15 28 ·9 | 46 ·75 |
| 2 | 6 55 54 ·10 | 19 10 48 ·4 | 47 ·63 |
| 3 | 6 57 58 ·82 | 19 6 2 ·6 | 48 ·53 |
| 4 | 7 0 3 ·47 | 19 1 11 ·4 | 49 ·42 |
| 5 | 7 2 8 ·06 | 18 56 14 ·9 | 50 ·32 |
| 6 | 7 4 12 ·59 | 18 51 13 ·0 | 51 ·20 |
| 7 | 7 6 17 ·05 | 18 46 5 ·8 | 52 ·08 |
| 8 | 7 8 21 ·45 | 18 40 53 ·3 | 52 ·97 |
| 9 | 7 10 25 ·78 | 18 35 35 ·5 | 53 ·83 |
| 10 | 7 12 30 ·05 | 18 30 12 ·5 | 54 ·70 |
| 11 | 7 14 34 ·25 | 18 24 44 ·3 | 55 ·58 |
| 12 | 7 16 38 ·39 | 18 19 10 ·8 | 56 ·45 |
| 13 | 7 18 42 ·47 | 18 13 32 ·1 | 57 ·30 |
| 14 | 7 20 46 ·48 | 18 7 48 ·3 | 58 ·17 |
| 15 | 7 22 50 ·43 | 18 1 59 ·3 | 59 ·02 |
| 16 | 7 24 54 ·31 | 17 56 5 ·2 | 59 ·87 |
| 17 | 7 26 58 ·13 | 17 50 6 ·0 | 60 ·72 |
| 18 | 7 29 1 ·88 | 17 44 1 ·7 | 61 ·57 |
| 19 | 7 31 5 ·57 | 17 37 52 ·3 | 62 ·40 |
| 20 | 7 33 9 ·20 | 17 31 37 ·9 | 63 ·23 |
| 21 | 7 35 12 ·77 | 17 25 18 ·5 | 64 ·08 |
| 22 | 7 37 16 ·27 | 17 18 54 ·0 | 64 ·90 |
| 23 | 7 39 19 ·71 | N.17 12 24 ·6 | 65 ·72 |
| | *TUESDAY* 18. | | |
| 0 | 7 41 23 ·09 | N.17 5 50 ·3 | 66 ·53 |
| 1 | 7 43 26 ·41 | 16 59 11 ·1 | 67 ·37 |
| 2 | 7 45 29 ·67 | 16 52 26 ·9 | 68 ·17 |
| 3 | 7 47 32 ·86 | 16 45 37 ·9 | 68 ·98 |
| 4 | 7 49 36 ·00 | 16 38 44 ·0 | 69 ·78 |
| 5 | 7 51 39 ·07 | 16 31 45 ·3 | 70 ·58 |
| 6 | 7 53 42 ·09 | 16 24 41 ·8 | 71 ·37 |
| 7 | 7 55 45 ·05 | 16 17 33 ·6 | 72 ·17 |
| 8 | 7 57 47 ·95 | 16 10 20 ·6 | 72 ·97 |
| 9 | 7 59 50 ·79 | 16 3 2 ·8 | 73 ·73 |
| 10 | 8 1 53 ·58 | 15 55 40 ·4 | 74 ·52 |
| 11 | 8 3 56 ·31 | 15 48 13 ·3 | 75 ·30 |
| 12 | 8 5 58 ·99 | 15 40 41 ·5 | 76 ·07 |
| 13 | 8 8 1 ·62 | 15 33 5 ·1 | 76 ·83 |
| 14 | 8 10 4 ·19 | 15 25 24 ·1 | 77 ·58 |
| 15 | 8 12 6 ·71 | 15 17 38 ·6 | 78 ·35 |
| 16 | 8 14 9 ·18 | 15 9 48 ·5 | 79 ·10 |
| 17 | 8 16 11 ·59 | 15 1 53 ·9 | 79 ·83 |
| 18 | 8 18 13 ·96 | 14 53 54 ·9 | 80 ·58 |
| 19 | 8 20 16 ·28 | 14 45 51 ·4 | 81 ·33 |
| 20 | 8 22 18 ·55 | 14 37 43 ·4 | 82 ·05 |
| 21 | 8 24 20 ·78 | 14 29 31 ·1 | 82 ·78 |
| 22 | 8 26 22 ·96 | 14 21 14 ·4 | 83 ·50 |
| 23 | 8 28 25 ·10 | 14 12 53 ·4 | 84 ·22 |
| 24 | 8 30 27 ·19 | N.14 4 28 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 30 27 ·19 | N.14 4 28 ·1 | 84 ·93 |
| 1 | 8 32 29 ·24 | 13 55 58 ·5 | 85 ·63 |
| 2 | 8 34 31 ·25 | 13 47 24 ·7 | 86 ·33 |
| 3 | 8 36 33 ·22 | 13 38 46 ·7 | 87 ·03 |
| 4 | 8 38 35 ·16 | 13 30 4 ·5 | 87 ·72 |
| 5 | 8 40 37 ·06 | 13 21 18 ·2 | 88 ·42 |
| 6 | 8 42 38 ·92 | 13 12 27 ·7 | 89 ·08 |
| 7 | 8 44 40 ·75 | 13 3 33 ·2 | 89 ·77 |
| 8 | 8 46 42 ·54 | 12 54 34 ·6 | 90 ·45 |
| 9 | 8 48 44 ·31 | 12 45 31 ·9 | 91 ·10 |
| 10 | 8 50 46 ·04 | 12 36 25 ·3 | 91 ·75 |
| 11 | 8 52 47 ·75 | 12 27 14 ·8 | 92 ·42 |
| 12 | 8 54 49 ·43 | 12 18 0 ·3 | 93 ·07 |
| 13 | 8 56 51 ·08 | 12 8 41 ·9 | 93 ·70 |
| 14 | 8 58 52 ·71 | 11 59 19 ·7 | 94 ·32 |
| 15 | 9 0 54 ·32 | 11 49 53 ·7 | 94 ·98 |
| 16 | 9 2 55 ·91 | 11 40 23 ·8 | 95 ·58 |
| 17 | 9 4 57 ·48 | 11 30 50 ·3 | 96 ·22 |
| 18 | 9 6 59 ·03 | 11 21 13 ·0 | 96 ·83 |
| 19 | 9 9 0 ·57 | 11 11 32 ·0 | 97 ·42 |
| 20 | 9 11 2 ·10 | 11 1 47 ·5 | 98 ·03 |
| 21 | 9 13 3 ·61 | 10 51 59 ·3 | 98 ·63 |
| 22 | 9 15 5 ·12 | 10 42 7 ·5 | 99 ·22 |
| 23 | 9 17 6 ·61 | N.10 32 12 ·2 | 99 ·78 |
| | *THURSDAY* 20. | | |
| 0 | 9 19 8 ·10 | N.10 22 13 ·5 | 100 ·37 |
| 1 | 9 21 9 ·58 | 10 12 11 ·3 | 100 ·93 |
| 2 | 9 23 11 ·06 | 10 2 5 ·7 | 101 ·50 |
| 3 | 9 25 12 ·55 | 9 51 56 ·7 | 102 ·05 |
| 4 | 9 27 14 ·03 | 9 41 44 ·4 | 102 ·60 |
| 5 | 9 29 15 ·51 | 9 31 28 ·8 | 103 ·15 |
| 6 | 9 31 17 ·00 | 9 21 9 ·9 | 103 ·67 |
| 7 | 9 33 18 ·50 | 9 10 47 ·9 | 104 ·22 |
| 8 | 9 35 20 ·00 | 9 0 22 ·6 | 104 ·72 |
| 9 | 9 37 21 ·52 | 8 49 54 ·3 | 105 ·25 |
| 10 | 9 39 23 ·05 | 8 39 22 ·8 | 105 ·75 |
| 11 | 9 41 24 ·59 | 8 28 48 ·3 | 106 ·25 |
| 12 | 9 43 26 ·15 | 8 18 10 ·8 | 106 ·75 |
| 13 | 9 45 27 ·73 | 8 7 30 ·3 | 107 ·22 |
| 14 | 9 47 29 ·33 | 7 56 47 ·0 | 107 ·72 |
| 15 | 9 49 30 ·96 | 7 46 0 ·7 | 108 ·18 |
| 16 | 9 51 32 ·61 | 7 35 11 ·6 | 108 ·65 |
| 17 | 9 53 34 ·29 | 7 24 19 ·7 | 109 ·10 |
| 18 | 9 55 36 ·00 | 7 13 25 ·1 | 109 ·55 |
| 19 | 9 57 37 ·74 | 7 2 27 ·8 | 110 ·00 |
| 20 | 9 59 39 ·52 | 6 51 27 ·8 | 110 ·43 |
| 21 | 10 1 41 ·33 | 6 40 25 ·2 | 110 ·85 |
| 22 | 10 3 43 ·19 | 6 29 20 ·1 | 111 ·28 |
| 23 | 10 5 45 ·08 | 6 18 12 ·4 | 111 ·68 |
| 24 | 10 7 47 ·02 | N. 6 7 2 ·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 7 47·02 | N.6 7 2·3 | 112·10 |
| 1 | 10 9 49·01 | 5 55 49·7 | 112·48 |
| 2 | 10 11 51·04 | 5 44 34·8 | 112·88 |
| 3 | 10 13 53·12 | 5 33 17·5 | 113·25 |
| 4 | 10 15 55·26 | 5 21 58·0 | 113·62 |
| 5 | 10 17 57·46 | 5 10 36·3 | 114·00 |
| 6 | 10 19 59·71 | 4 59 12·3 | 114·33 |
| 7 | 10 22 2·03 | 4 47 46·3 | 114·70 |
| 8 | 10 24 4·40 | 4 36 18·1 | 115·02 |
| 9 | 10 26 6·84 | 4 24 48·0 | 115·37 |
| 10 | 10 28 9·35 | 4 13 15·8 | 115·67 |
| 11 | 10 30 11·93 | 4 1 41·8 | 116·00 |
| 12 | 10 32 14·59 | 3 50 5·8 | 116·30 |
| 13 | 10 34 17·32 | 3 38 28·0 | 116·58 |
| 14 | 10 36 20·13 | 3 26 48·5 | 116·87 |
| 15 | 10 38 23·02 | 3 15 7·3 | 117·15 |
| 16 | 10 40 25·99 | 3 3 24·4 | 117·42 |
| 17 | 10 42 29·05 | 2 51 39·9 | 117·67 |
| 18 | 10 44 32·20 | 2 39 53·9 | 117·92 |
| 19 | 10 46 35·44 | 2 28 6·4 | 118·17 |
| 20 | 10 48 38·77 | 2 16 17·4 | 118·38 |
| 21 | 10 50 42·20 | 2 4 27·1 | 118·62 |
| 22 | 10 52 45·72 | 1 52 35·4 | 118·82 |
| 23 | 10 54 49·35 | N.1 40 42·5 | 119·03 |
| | *SATURDAY* 22. | | |
| 0 | 10 56 53·08 | N.1 28 48·3 | 119·22 |
| 1 | 10 58 56·92 | 1 16 53·0 | 119·40 |
| 2 | 11 1 0·87 | 1 4 56·6 | 119·57 |
| 3 | 11 3 4·93 | 0 52 59·2 | 119·73 |
| 4 | 11 5 9·11 | 0 41 0·8 | 119·90 |
| 5 | 11 7 13·40 | 0 29 1·4 | 120·02 |
| 6 | 11 9 17·81 | 0 17 1·3 | 120·17 |
| 7 | 11 11 22·34 | N.0 5 0·3 | 120·28 |
| 8 | 11 13 27·00 | S.0 7 1·4 | 120·40 |
| 9 | 11 15 31·79 | 0 19 3·8 | 120·50 |
| 10 | 11 17 36·70 | 0 31 6·8 | 120·58 |
| 11 | 11 19 41·75 | 0 43 10·3 | 120·67 |
| 12 | 11 21 46·94 | 0 55 14·3 | 120·73 |
| 13 | 11 23 52·26 | 1 7 18·7 | 120·80 |
| 14 | 11 25 57·72 | 1 19 23·5 | 120·85 |
| 15 | 11 28 3·33 | 1 31 28·6 | 120·88 |
| 16 | 11 30 9·08 | 1 43 33·9 | 120·90 |
| 17 | 11 32 14·99 | 1 55 39·3 | 120·93 |
| 18 | 11 34 21·05 | 2 7 44·9 | 120·93 |
| 19 | 11 36 27·26 | 2 19 50·5 | 120·92 |
| 20 | 11 38 33·62 | 2 31 56·0 | 120·90 |
| 21 | 11 40 40·15 | 2 44 1·4 | 120·88 |
| 22 | 11 42 46·84 | 2 56 6·7 | 120·83 |
| 23 | 11 44 53·69 | 3 8 11·7 | 120·78 |
| 24 | 11 47 0·71 | S.3 20 16·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 47 0·71 | S. 3 20 16·4 | 120·72 |
| 1 | 11 49 7·90 | 3 32 20·7 | 120·65 |
| 2 | 11 51 15·26 | 3 44 24·6 | 120·57 |
| 3 | 11 53 22·79 | 3 56 28·0 | 120·45 |
| 4 | 11 55 30·50 | 4 8 30·7 | 120·35 |
| 5 | 11 57 38·39 | 4 20 32·8 | 120·23 |
| 6 | 11 59 46·46 | 4 32 34·2 | 120·10 |
| 7 | 12 1 54·71 | 4 44 34·8 | 119·95 |
| 8 | 12 4 3·15 | 4 56 34·5 | 119·80 |
| 9 | 12 6 11·78 | 5 8 33·3 | 119·62 |
| 10 | 12 8 20·60 | 5 20 31·0 | 119·43 |
| 11 | 12 10 29·62 | 5 32 27·6 | 119·25 |
| 12 | 12 12 38·83 | 5 44 23·1 | 119·03 |
| 13 | 12 14 48·24 | 5 56 17·3 | 118·82 |
| 14 | 12 16 57·86 | 6 8 10·2 | 118·60 |
| 15 | 12 19 7·67 | 6 20 1·8 | 118·33 |
| 16 | 12 21 17·70 | 6 31 51·8 | 118·08 |
| 17 | 12 23 27·93 | 6 43 40·3 | 117·83 |
| 18 | 12 25 38·37 | 6 55 27·3 | 117·53 |
| 19 | 12 27 49·02 | 7 7 12·5 | 117·23 |
| 20 | 12 29 59·88 | 7 18 55·9 | 116·93 |
| 21 | 12 32 10·96 | 7 30 37·5 | 116·62 |
| 22 | 12 34 22·26 | 7 42 17·2 | 116·28 |
| 23 | 12 36 33·78 | S. 7 53 54·9 | 115·93 |
| | *MONDAY* 24. | | |
| 0 | 12 38 45·52 | S. 8 5 30·5 | 115·58 |
| 1 | 12 40 57·49 | 8 17 4·0 | 115·20 |
| 2 | 12 43 9·68 | 8 28 35·2 | 114·82 |
| 3 | 12 45 22·10 | 8 40 4·1 | 114·42 |
| 4 | 12 47 34·75 | 8 51 30·6 | 114·02 |
| 5 | 12 49 47·63 | 9 2 54·7 | 113·60 |
| 6 | 12 52 0·75 | 9 14 16·3 | 113·15 |
| 7 | 12 54 14·10 | 9 25 35·2 | 112·70 |
| 8 | 12 56 27·68 | 9 36 51·4 | 112·23 |
| 9 | 12 58 41·51 | 9 48 4·8 | 111·77 |
| 10 | 13 0 55·57 | 9 59 15·4 | 111·27 |
| 11 | 13 3 9·87 | 10 10 23·0 | 110·77 |
| 12 | 13 5 24·42 | 10 21 27·6 | 110·25 |
| 13 | 13 7 39·21 | 10 32 29·1 | 109·72 |
| 14 | 13 9 54·25 | 10 43 27·4 | 109·18 |
| 15 | 13 12 9·53 | 10 54 22·5 | 108·63 |
| 16 | 13 14 25·06 | 11 5 14·3 | 108·05 |
| 17 | 13 16 40·84 | 11 16 2·6 | 107·47 |
| 18 | 13 18 56·87 | 11 26 47·4 | 106·87 |
| 19 | 13 21 13·15 | 11 37 28·6 | 106·27 |
| 20 | 13 23 29·69 | 11 48 6·2 | 105·63 |
| 21 | 13 25 46·47 | 11 58 40·0 | 105·00 |
| 22 | 13 28 3·51 | 12 9 10·0 | 104·35 |
| 23 | 13 30 20·81 | 12 19 36·1 | 103·68 |
| 24 | 13 32 38·36 | S.12 29 58·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 32 38 ·36 | S. 12 29 58 ·2 | 103 ·00 |
| 1 | 13 34 56 ·17 | 12 40 16 ·2 | 102 ·32 |
| 2 | 13 37 14 ·23 | 12 50 30 ·1 | 101 ·62 |
| 3 | 13 39 32 ·55 | 13 0 39 ·8 | 100 ·88 |
| 4 | 13 41 51 ·13 | 13 10 45 ·1 | 100 ·15 |
| 5 | 13 44 9 ·96 | 13 20 46 ·0 | 99 ·42 |
| 6 | 13 46 29 ·05 | 13 30 42 ·5 | 98 ·67 |
| 7 | 13 48 48 ·41 | 13 40 34 ·5 | 97 ·88 |
| 8 | 13 51 8 ·02 | 13 50 21 ·8 | 97 ·10 |
| 9 | 13 53 27 ·88 | 14 0 4 ·4 | 96 ·32 |
| 10 | 13 55 48 ·01 | 14 9 42 ·3 | 95 ·50 |
| 11 | 13 58 8 ·39 | 14 19 15 ·2 | 94 ·67 |
| 12 | 14 0 29 ·03 | 14 28 43 ·3 | 93 ·85 |
| 13 | 14 2 49 ·93 | 14 38 6 ·4 | 92 ·98 |
| 14 | 14 5 11 ·09 | 14 47 24 ·3 | 92 ·13 |
| 15 | 14 7 32 ·50 | 14 56 37 ·1 | 91 ·25 |
| 16 | 14 9 54 ·17 | 15 5 44 ·6 | 90 ·37 |
| 17 | 14 12 16 ·09 | 15 14 46 ·8 | 89 ·47 |
| 18 | 14 14 38 ·27 | 15 23 43 ·6 | 88 ·55 |
| 19 | 14 17 0 ·70 | 15 32 34 ·9 | 87 ·62 |
| 20 | 14 19 23 ·38 | 15 41 20 ·6 | 86 ·68 |
| 21 | 14 21 46 ·32 | 15 50 0 ·7 | 85 ·73 |
| 22 | 14 24 9 ·50 | 15 58 35 ·1 | 84 ·77 |
| 23 | 14 26 32 ·94 | S. 16 7 3 ·7 | 83 ·80 |
| | *WEDNESDAY* 26. | | |
| 0 | 14 28 56 ·62 | S. 16 15 26 ·5 | 82 ·80 |
| 1 | 14 31 20 ·55 | 16 23 43 ·3 | 81 ·80 |
| 2 | 14 33 44 ·73 | 16 31 54 ·1 | 80 ·78 |
| 3 | 14 36 9 ·15 | 16 39 58 ·8 | 79 ·75 |
| 4 | 14 38 33 ·81 | 16 47 57 ·3 | 78 ·72 |
| 5 | 14 40 58 ·71 | 16 55 49 ·6 | 77 ·67 |
| 6 | 14 43 23 ·85 | 17 3 35 ·6 | 76 ·62 |
| 7 | 14 45 49 ·22 | 17 11 15 ·3 | 75 ·55 |
| 8 | 14 48 14 ·83 | 17 18 48 ·6 | 74 ·45 |
| 9 | 14 50 40 ·67 | 17 26 15 ·3 | 73 ·37 |
| 10 | 14 53 6 ·74 | 17 33 35 ·5 | 72 ·25 |
| 11 | 14 55 33 ·04 | 17 40 49 ·0 | 71 ·15 |
| 12 | 14 57 59 ·56 | 17 47 55 ·9 | 70 ·02 |
| 13 | 15 0 26 ·30 | 17 54 56 ·0 | 68 ·88 |
| 14 | 15 2 53 ·27 | 18 1 49 ·3 | 67 ·73 |
| 15 | 15 5 20 ·45 | 18 8 35 ·7 | 66 ·57 |
| 16 | 15 7 47 ·84 | 18 15 15 ·1 | 65 ·42 |
| 17 | 15 10 15 ·44 | 18 21 47 ·6 | 64 ·22 |
| 18 | 15 12 43 ·26 | 18 28 12 ·9 | 63 ·05 |
| 19 | 15 15 11 ·27 | 18 34 31 ·2 | 61 ·83 |
| 20 | 15 17 39 ·49 | 18 40 42 ·2 | 60 ·63 |
| 21 | 15 20 7 ·90 | 18 46 46 ·0 | 59 ·42 |
| 22 | 15 22 36 ·51 | 18 52 42 ·5 | 58 ·20 |
| 23 | 15 25 5 ·31 | 18 58 31 ·7 | 56 ·95 |
| 24 | 15 27 34 ·30 | S. 19 4 13 ·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 27 34 ·30 | S. 19 4 13 ·4 | 55 ·7 |
| 1 | 15 30 3 ·47 | 19 9 47 ·7 | 54 ·4 |
| 2 | 15 32 32 ·82 | 19 15 14 ·4 | 53 ·2 |
| 3 | 15 35 2 ·35 | 19 20 33 ·6 | 51 ·9 |
| 4 | 15 37 32 ·05 | 19 25 45 ·1 | 50 ·6 |
| 5 | 15 40 1 ·91 | 19 30 49 ·0 | 49 ·3 |
| 6 | 15 42 31 ·94 | 19 35 45 ·2 | 48 ·0 |
| 7 | 15 45 2 ·13 | 19 40 33 ·6 | 46 ·7 |
| 8 | 15 47 32 ·47 | 19 45 14 ·1 | 45 ·[illegible] |
| 9 | 15 50 2 ·97 | 19 49 46 ·9 | 44 ·[illegible] |
| 10 | 15 52 33 ·61 | 19 54 11 ·7 | 42 [illegible] |
| 11 | 15 55 4 ·39 | 19 58 28 ·6 | 41 [illegible] |
| 12 | 15 57 35 ·31 | 20 2 37 ·5 | 40 [illegible] |
| 13 | 16 0 6 ·36 | 20 6 38 ·4 | 38 [illegible] |
| 14 | 16 2 37 ·54 | 20 10 31 ·2 | 37 |
| 15 | 16 5 8 ·84 | 20 14 15 ·9 | 36 |
| 16 | 16 7 40 ·26 | 20 17 52 ·5 | 34 |
| 17 | 16 10 11 ·79 | 20 21 21 ·0 | 33 |
| 18 | 16 12 43 ·43 | 20 24 41 ·2 | 32 [illegible] |
| 19 | 16 15 15 ·18 | 20 27 53 ·3 | 30 [illegible] |
| 20 | 16 17 47 ·02 | 20 30 57 ·0 | 29 [illegible] |
| 21 | 16 20 18 ·95 | 20 33 52 ·5 | 27 [illegible] |
| 22 | 16 22 50 ·97 | 20 36 39 ·7 | 26 [illegible] |
| 23 | 16 25 23 ·07 | S. 20 39 18 ·6 | 25 ·[illegible] |
| | *FRIDAY* 28. | | |
| 0 | 16 27 55 ·25 | S. 20 41 49 ·1 | 23 ·6 |
| 1 | 16 30 27 ·50 | 20 44 11 ·2 | 22 ·2 |
| 2 | 16 32 59 ·82 | 20 46 24 ·9 | 20 ·8 |
| 3 | 16 35 32 ·19 | 20 48 30 ·2 | 19 ·4 |
| 4 | 16 38 4 ·62 | 20 50 27 ·1 | 18 ·0 |
| 5 | 16 40 37 ·10 | 20 52 15 ·6 | 16 ·6 |
| 6 | 16 43 9 ·63 | 20 53 55 ·5 | 15 ·2 |
| 7 | 16 45 42 ·19 | 20 55 27 ·0 | 13 ·8 |
| 8 | 16 48 14 ·78 | 20 56 50 ·0 | 12 ·4 |
| 9 | 16 50 47 ·40 | 20 58 4 ·5 | 11 ·0 |
| 10 | 16 53 20 ·04 | 20 59 10 ·5 | 9 ·5 |
| 11 | 16 55 52 ·70 | 21 0 8 ·0 | 8 ·1 |
| 12 | 16 58 25 ·37 | 21 0 57 ·0 | 6 ·7 |
| 13 | 17 0 58 ·05 | 21 1 37 ·5 | 5 ·2 |
| 14 | 17 3 30 ·72 | 21 2 9 ·4 | 3 ·8 |
| 15 | 17 6 3 ·39 | 21 2 32 ·8 | 2 ·4 |
| 16 | 17 8 36 ·04 | 21 2 47 ·7 | 1 ·0 |
| 17 | 17 11 8 ·68 | 21 2 54 ·0 | 0 ·3 |
| 18 | 17 13 41 ·29 | 21 2 51 ·9 | 1 ·7 |
| 19 | 17 16 13 ·87 | 21 2 41 ·2 | 3 ·2 |
| 20 | 17 18 46 ·42 | 21 2 22 ·0 | 4 ·6 |
| 21 | 17 21 18 ·93 | 21 1 54 ·3 | 6 ·0 |
| 22 | 17 23 51 ·40 | 21 1 18 ·1 | 7 ·4 |
| 23 | 17 26 23 ·81 | 21 0 33 ·4 | 8 ·8 |
| 24 | 17 28 56 ·17 | S. 20 59 40 ·2 | |

## MEAN TIME.

### E MOON'S RIGHT ASCENSION AND DECLINATION.

| ›cension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SATURDAY* 29. | | |
| s | ° ′ ″ | ″ |
| 56 ·17 | S. 20 59 40 ·2 | 10 ·27 |
| 28 ·47 | 20 58 38 ·6 | 11 ·68 |
| 0 ·70 | 20 57 28 ·5 | 13 ·08 |
| 32 ·86 | 20 56 10 ·0 | 14 ·50 |
| 4 ·94 | 20 54 43 ·0 | 15 ·88 |
| 36 ·93 | 20 53 7 ·7 | 17 ·28 |
| 8 ·84 | 20 51 24 ·0 | 18 ·67 |
| 40 ·65 | 20 49 32 ·0 | 20 ·07 |
| 12 ·37 | 20 47 31 ·6 | 21 ·45 |
| 43 ·98 | 20 45 22 ·9 | 22 ·82 |
| 15 ·49 | 20 43 6 ·0 | 24 ·22 |
| 46 ·88 | 20 40 40 ·7 | 25 ·57 |
| 18 ·15 | 20 38 7 ·3 | 26 ·93 |
| 49 ·30 | 20 35 25 ·7 | 28 ·30 |
| 20 ·32 | 20 32 35 ·9 | 29 ·65 |
| 51 ·21 | 20 29 38 ·0 | 31 ·02 |
| 21 ·97 | 20 26 31 ·9 | 32 ·33 |
| 52 ·58 | 20 23 17 ·9 | 33 ·68 |
| 23 ·04 | 20 19 55 ·8 | 35 ·02 |
| 53 ·36 | 20 16 25 ·7 | 36 ·33 |
| 23 ·52 | 20 12 47 ·7 | 37 ·67 |
| 53 ·52 | 20 9 1 ·7 | 38 ·97 |
| 23 ·36 | 20 5 7 ·9 | 40 ·27 |
| 53 ·04 | S. 20 1 6 ·3 | 41 ·57 |
| *SUNDAY* 30. | | |
| 22 ·54 | S. 19 56 56 ·9 | 42 ·85 |
| 51 ·87 | 19 52 39 ·8 | 44 ·15 |
| 21 ·02 | 19 48 14 ·9 | 45 ·42 |
| 49 ·98 | 19 43 42 ·4 | 46 ·67 |
| 18 ·76 | 19 39 2 ·4 | 47 ·95 |
| 47 ·36 | 19 34 14 ·7 | 49 ·18 |
| 15 ·76 | 19 29 19 ·6 | 50 ·43 |
| 43 ·96 | 19 24 17 ·0 | 51 ·67 |
| 11 ·96 | 19 19 7 ·0 | 52 ·90 |
| 39 ·77 | 19 13 49 ·6 | 54 ·10 |
| 7 ·36 | 19 8 25 ·0 | 55 ·32 |
| 34 ·75 | 19 2 53 ·1 | 56 ·52 |
| 1 ·93 | 18 57 14 ·0 | 57 ·70 |
| 28 ·90 | 18 51 27 ·8 | 58 ·90 |
| 55 ·65 | 18 45 34 ·4 | 60 ·07 |
| 22 ·18 | 18 39 34 ·0 | 61 ·22 |
| 48 ·49 | 18 33 26 ·7 | 62 ·37 |
| 14 ·58 | 18 27 12 ·5 | 63 ·52 |
| 40 ·44 | 18 20 51 ·4 | 64 ·65 |
| 6 ·08 | 18 14 23 ·5 | 65 ·77 |
| 31 ·48 | 18 7 48 ·9 | 66 ·88 |
| 56 ·66 | 18 1 7 ·6 | 68 ·00 |
| 21 ·60 | 17 54 19 ·6 | 69 ·07 |
| 46 ·30 | 17 47 25 ·2 | 70 ·17 |
| 10 ·77 | S. 17 40 24 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 28 10 ·77 | S. 17 40 24 ·2 | 71 ·23 |
| 1 | 19 30 35 ·00 | 17 33 16 ·8 | 72 ·28 |
| 2 | 19 32 58 ·99 | 17 26 3 ·1 | 73 ·35 |
| 3 | 19 35 22 ·74 | 17 18 43 ·0 | 74 ·38 |
| 4 | 19 37 46 ·24 | 17 11 16 ·7 | 75 ·40 |
| 5 | 19 40 9 ·51 | 17 3 44 ·3 | 76 ·43 |
| 6 | 19 42 32 ·53 | 16 56 5 ·7 | 77 ·43 |
| 7 | 19 44 55 ·30 | 16 48 21 ·1 | 78 ·42 |
| 8 | 19 47 17 ·83 | 16 40 30 ·6 | 79 ·42 |
| 9 | 19 49 40 ·11 | 16 32 34 ·1 | 80 ·38 |
| 10 | 19 52 2 ·14 | 16 24 31 ·8 | 81 ·35 |
| 11 | 19 54 23 ·92 | 16 16 23 ·7 | 82 ·30 |
| 12 | 19 56 45 ·46 | 16 8 9 ·9 | 83 ·23 |
| 13 | 19 59 6 ·75 | 15 59 50 ·5 | 84 ·17 |
| 14 | 20 1 27 ·79 | 15 51 25 ·5 | 85 ·08 |
| 15 | 20 3 48 ·58 | 15 42 55 ·0 | 86 ·00 |
| 16 | 20 6 9 ·13 | 15 34 19 ·0 | 86 ·88 |
| 17 | 20 8 29 ·42 | 15 25 37 ·7 | 87 ·75 |
| 18 | 20 10 49 ·46 | 15 16 51 ·2 | 88 ·63 |
| 19 | 20 13 9 ·26 | 15 7 59 ·4 | 89 ·50 |
| 20 | 20 15 28 ·80 | 14 59 2 ·4 | 90 ·33 |
| 21 | 20 17 48 ·10 | 14 50 0 ·4 | 91 ·17 |
| 22 | 20 20 7 ·14 | 14 40 53 ·4 | 92 ·00 |
| 23 | 20 22 25 ·94 | S. 14 31 41 ·4 | 92 ·80 |
| | *TUESDAY, APRIL* 1. | | |
| 0 | 20 24 44 ·49 | S. 14 22 24 ·6 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ● New Moon - - | 7 18 36 ·4 |
| ☽ *First Quarter* - | 15 13 52 ·8 |
| ○ Full Moon - - | 23 8 18 ·9 |
| ☾ *Last Quarter* - | 30 5 0 ·3 |

| | d h |
|---|---|
| ☾ Perigee - - - - - - - | 3 7 |
| ☾ Apogee - - - - - - - | 15 12 |
| ☾ Perigee - - - - - - - | 28 1 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | Spica ♍ | W. | 50 10 46 | 2302 | 51 56 42 | 2299 | 53 42 43 | 2295 | 55 28 50 |
| | Saturn | E. | 61 32 40 | 2362 | 59 48 11 | 2360 | 58 3 39 | 2358 | 56 19 4 |
| | Sun | E. | 89 2 0 | 2638 | 87 23 56 | 2635 | 85 45 48 | 2631 | 84 7 35 |
| 2 | Spica ♍ | W. | 64 20 30 | 2278 | 66 7 2 | 2275 | 67 53 38 | 2273 | 69 40 17 |
| | Antares | W. | 19 30 59 | 2434 | 21 13 45 | 2409 | 22 57 7 | 2388 | 24 40 59 |
| | Saturn | E. | 47 35 31 | 2350 | 45 50 44 | 2350 | 44 5 57 | 2351 | 42 21 11 |
| | Sun | E. | 75 55 23 | 2613 | 74 16 46 | 2610 | 72 38 5 | 2608 | 70 59 21 |
| 3 | Spica ♍ | W. | 78 34 15 | 2264 | 80 21 8 | 2262 | 82 8 3 | 2262 | 83 54 59 |
| | Antares | W. | 33 25 8 | 2322 | 35 10 36 | 2315 | 36 56 13 | 2311 | 38 41 57 |
| | Saturn | E. | 33 38 1 | 2368 | 31 53 40 | 2374 | 30 9 28 | 2382 | 28 25 28 |
| | Sun | E. | 62 45 7 | 2600 | 61 6 12 | 2599 | 59 27 16 | 2600 | 57 48 21 |
| 4 | Spica ♍ | W. | 92 49 41 | 2262 | 94 36 36 | 2264 | 96 23 28 | 2266 | 98 10 18 |
| | Antares | W. | 47 31 49 | 2296 | 49 17 55 | 2295 | 51 4 2 | 2295 | 52 50 9 |
| | Sun | E. | 49 33 58 | 2607 | 47 55 12 | 2610 | 46 16 30 | 2613 | 44 37 52 |
| 5 | Spica ♍ | W. | 107 3 39 | 2281 | 108 50 7 | 2285 | 110 36 28 | 2289 | 112 22 43 |
| | Antares | W. | 61 40 21 | 2304 | 63 26 15 | 2308 | 65 12 3 | 2311 | 66 57 47 |
| | Sun | E. | 36 26 14 | 2644 | 34 48 19 | 2652 | 33 10 34 | 2661 | 31 33 [illegible] |
| 10 | Sun | W. | 27 39 54 | 3096 | 29 8 9 | 3105 | 30 36 13 | 3115 | 32 4 [illegible] |
| | Aldebaran | E. | 51 1 53 | 2704 | 49 25 18 | 2718 | 47 49 2 | 2733 | 46 13 [illegible] |
| | Pollux | E. | 93 22 25 | 2756 | 91 46 59 | 2769 | 90 11 51 | 2784 | 88 37 [illegible] |
| 11 | Sun | W. | 39 20 0 | 3184 | 40 46 28 | 3196 | 42 12 42 | 3209 | 43 38 40 |
| | Aldebaran | E. | 38 18 36 | 2828 | 36 44 44 | 2844 | 35 11 13 | 2860 | 33 38 [illegible] |
| | Pollux | E. | 80 47 30 | 2869 | 79 14 31 | 2883 | 77 41 50 | 2897 | 76 9 27 |
| | Regulus | E. | 117 33 13 | 2815 | 115 59 5 | 2828 | 114 25 13 | 2840 | 112 51 37 |
| 12 | Sun | W. | 50 44 54 | 3282 | 52 9 26 | 3294 | 53 33 45 | 3306 | 54 57 56 |
| | Aldebaran | E. | 25 57 47 | 2969 | 24 26 55 | 2991 | 22 56 31 | 3013 | 21 26 3[illegible] |
| | Pollux | E. | 68 32 0 | 2981 | 67 1 23 | 2994 | 65 31 3 | 3008 | 64 1 [illegible] |
| | Regulus | E. | 105 7 36 | 2913 | 103 35 33 | 2924 | 102 3 45 | 2935 | 100 32 1[illegible] |
| 13 | Sun | W. | 61 55 10 | 3367 | 63 18 4 | 3378 | 64 40 46 | 3386 | 66 3 1[illegible] |
| | α Arietis | W. | 21 26 28 | 3294 | 22 50 47 | 3265 | 24 15 39 | 3242 | 25 40 5[illegible] |
| | Pollux | E. | 56 34 56 | 3088 | 55 6 32 | 3101 | 53 38 24 | 3114 | 52 10 3[illegible] |
| | Regulus | E. | 92 57 36 | 2996 | 91 27 18 | 3005 | 89 57 11 | 3013 | 88 27 1[illegible] |
| 14 | Sun | W. | 72 53 48 | 3430 | 74 15 31 | 3436 | 75 37 7 | 3441 | 76 58 3[illegible] |
| | α Arietis | W. | 32 51 34 | 3178 | 34 18 10 | 3172 | 35 44 53 | 3168 | 37 11 4[illegible] |
| | Pollux | E. | 44 55 16 | 3196 | 43 29 2 | 3212 | 42 3 7 | 3226 | 40 37 2[illegible] |
| | Regulus | E. | 80 59 54 | 3056 | 79 30 50 | 3062 | 78 1 54 | 3068 | 76 33 [illegible] |
| 15 | Sun | W. | 83 44 58 | 3463 | 85 6 4 | 3464 | 86 27 8 | 3465 | 87 48 1[illegible] |
| | α Arietis | W. | 44 26 30 | 3152 | 45 53 37 | 3149 | 47 20 47 | 3147 | 48 48 [illegible] |
| | Aldebaran | W. | 11 29 29 | 3405 | 12 51 40 | 3338 | 14 15 8 | 3289 | 15 39 3[illegible] |
| | Pollux | E. | 33 34 24 | 3339 | 32 10 58 | 3365 | 30 48 1 | 3393 | 29 25 3[illegible] |
| | Regulus | E. | 69 10 16 | 3090 | 67 41 55 | 3092 | 66 13 36 | 3094 | 64 45 2[illegible] |
| | Spica ♍ | E. | 123 1 42 | 3067 | 121 32 52 | 3069 | 120 4 5 | 3070 | 118 35 1[illegible] |
| 16 | Sun | W. | 94 33 25 | 3462 | 95 54 32 | 3460 | 97 15 41 | 3456 | 98 36 5[illegible] |
| | α Arietis | W. | 56 4 58 | 3128 | 57 32 34 | 3124 | 59 0 15 | 3119 | 60 28 [illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| tar's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ca ♍ | W. | 57 15 1 | 2289 | 59 1 16 | 2285 | 60 47 37 | 2283 | 62 34 1 | 2280 |
| urn | E. | 54 34 26 | 2354 | 52 49 45 | 2353 | 51 5 2 | 2351 | 49 20 17 | 2350 |
| s | E. | 82 29 17 | 2624 | 80 50 55 | 2621 | 79 12 28 | 2618 | 77 33 58 | 2615 |
| ca ♍ | W. | 71 26 59 | 2268 | 73 13 45 | 2267 | 75 0 33 | 2266 | 76 47 23 | 2264 |
| tares | W. | 26 25 15 | 2357 | 28 9 51 | 2346 | 29 54 43 | 2336 | 31 39 50 | 2328 |
| urn | E. | 40 36 26 | 2353 | 38 51 44 | 2355 | 37 7 5 | 2358 | 35 22 30 | 2362 |
| s | E. | 69 20 34 | 2604 | 67 41 45 | 2602 | 66 2 53 | 2602 | 64 24 1 | 2601 |
| ca ♍ | W. | 85 41 56 | 2261 | 87 28 53 | 2261 | 89 15 50 | 2262 | 91 2 46 | 2262 |
| tares | W. | 40 27 48 | 2303 | 42 13 43 | 2300 | 43 59 42 | 2298 | 45 45 44 | 2296 |
| urn | E. | 26 41 43 | 2405 | 24 58 16 | 2421 | 23 15 11 | 2441 | 21 32 35 | 2467 |
| s | E. | 56 9 25 | 2601 | 54 30 31 | 2602 | 52 51 38 | 2603 | 51 12 47 | 2604 |
| ca ♍ | W. | 99 57 6 | 2270 | 101 43 50 | 2272 | 103 30 31 | 2275 | 105 17 7 | 2278 |
| tares | W. | 54 36 15 | 2296 | 56 22 20 | 2298 | 58 8 23 | 2299 | 59 54 24 | 2302 |
| s | E. | 42 59 19 | 2621 | 41 20 52 | 2626 | 39 42 32 | 2631 | 38 4 19 | 2637 |
| ca ♍ | W. | 114 8 52 | 2299 | 115 54 53 | 2304 | 117 40 47 | 2309 | 119 26 33 | 2315 |
| tares | W. | 68 43 25 | 2319 | 70 28 57 | 2324 | 72 14 21 | 2329 | 73 59 38 | 2335 |
| s | E. | 29 55 43 | 2681 | 28 18 38 | 2695 | 26 41 51 | 2710 | 25 5 24 | 2725 |
| s | W. | 33 31 43 | 3136 | 34 59 9 | 3148 | 36 26 20 | 3160 | 37 53 17 | 3172 |
| lebaran | E. | 44 37 32 | 2764 | 43 2 17 | 2780 | 41 27 23 | 2795 | 39 52 49 | 2811 |
| lux | E. | 87 2 31 | 2811 | 85 28 18 | 2825 | 83 54 23 | 2841 | 82 20 48 | 2854 |
| s | W. | 45 4 24 | 3234 | 46 29 53 | 3246 | 47 55 8 | 3259 | 49 20 8 | 3271 |
| lebaran | E. | 32 5 15 | 2894 | 30 32 48 | 2912 | 29 0 44 | 2930 | 27 29 3 | 2950 |
| lux | E. | 74 37 22 | 2925 | 73 5 35 | 2939 | 71 34 6 | 2953 | 70 2 54 | 2967 |
| gulus | E. | 111 18 18 | 2865 | 109 45 14 | 2877 | 108 12 26 | 2890 | 106 39 54 | 2901 |
| s | W. | 56 21 43 | 3327 | 57 45 23 | 3339 | 59 8 50 | 3348 | 60 32 6 | 3359 |
| lebaran | E. | 19 57 11 | 3068 | 18 28 22 | 3101 | 17 0 14 | 3141 | 15 32 54 | 3189 |
| lux | E. | 62 31 14 | 3035 | 61 1 45 | 3048 | 59 32 32 | 3062 | 58 3 36 | 3075 |
| gulus | E. | 99 0 50 | 2957 | 97 29 43 | 2966 | 95 58 48 | 2977 | 94 28 6 | 2986 |
| s | W. | 67 25 42 | 3402 | 68 47 56 | 3410 | 70 10 1 | 3416 | 71 31 59 | 3424 |
| rietis | W. | 27 6 38 | 3211 | 28 32 34 | 3199 | 29 58 44 | 3190 | 31 25 5 | 3183 |
| lux | E. | 50 42 56 | 3142 | 49 15 37 | 3154 | 47 48 33 | 3168 | 46 21 46 | 3183 |
| gulus | E. | 86 57 28 | 3029 | 85 27 51 | 3036 | 83 58 23 | 3043 | 82 29 4 | 3051 |
| s | W. | 78 20 2 | 3451 | 79 41 21 | 3454 | 81 2 37 | 3457 | 82 23 49 | 3460 |
| rietis | W. | 38 38 31 | 3162 | 40 5 26 | 3158 | 41 32 25 | 3156 | 42 59 26 | 3154 |
| lux | E. | 39 12 9 | 3259 | 37 47 10 | 3277 | 36 22 32 | 3296 | 34 58 16 | 3317 |
| gulus | E. | 75 4 21 | 3077 | 73 35 43 | 3081 | 72 7 10 | 3084 | 70 38 41 | 3087 |
| s | W. | 89 9 13 | 3466 | 90 30 15 | 3466 | 91 51 17 | 3465 | 93 12 20 | 3463 |
| rietis | W. | 50 15 16 | 3141 | 51 42 36 | 3138 | 53 9 59 | 3135 | 54 37 26 | 3131 |
| lebaran | W. | 17 4 39 | 3226 | 18 30 18 | 3202 | 19 56 25 | 3184 | 21 22 53 | 3169 |
| lux | E. | 28 3 48 | 3461 | 26 42 40 | 3504 | 25 22 20 | 3552 | 24 2 53 | 3611 |
| gulus | E. | 63 17 5 | 3096 | 61 48 51 | 3097 | 60 20 38 | 3097 | 58 52 25 | 3096 |
| ca ♍ | E. | 117 6 34 | 3071 | 115 37 49 | 3071 | 114 9 4 | 3070 | 112 40 18 | 3069 |
| s | W. | 99 58 11 | 3448 | 101 19 33 | 3445 | 102 40 59 | 3439 | 104 2 31 | 3434 |
| rietis | W. | 61 55 55 | 3109 | 63 23 53 | 3103 | 64 51 59 | 3098 | 66 20 11 | 3091 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III$^h$ | P. L. of diff. | VI$^h$. | P. L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 16 | Aldebaran | W. | 22 49 39 | 3155 | 24 16 42 | 3144 | 25 43 58 | 3133 | 27 11 |
| | Regulus | E. | 57 24 11 | 3096 | 55 55 57 | 3095 | 54 27 41 | 3094 | 52 59 |
| | Spica ♍ | E. | 111 11 31 | 3068 | 109 42 42 | 3065 | 108 13 49 | 3063 | 106 44 |
| 17 | Sun | W. | 105 24 9 | 3428 | 106 45 54 | 3422 | 108 7 46 | 3415 | 109 29 |
| | α Arietis | W. | 67 48 32 | 3085 | 69 17 0 | 3078 | 70 45 36 | 3070 | 72 14 |
| | Aldebaran | W. | 34 31 49 | 3078 | 36 0 26 | 3069 | 37 29 14 | 3061 | 38 58 |
| | Regulus | E. | 45 37 12 | 3077 | 44 8 34 | 3074 | 42 39 52 | 3069 | 41 11 |
| | Spica ♍ | E. | 99 19 6 | 3036 | 97 49 38 | 3030 | 96 20 3 | 3024 | 94 50 |
| 18 | Sun | W. | 116 22 0 | 3365 | 117 44 57 | 3354 | 119 8 6 | 3345 | 120 31 |
| | α Arietis | W. | 79 40 39 | 3019 | 81 10 28 | 3010 | 82 40 28 | 3000 | 84 10 |
| | Aldebaran | W. | 46 26 1 | 3002 | 47 56 11 | 2991 | 49 26 35 | 2981 | 50 57 |
| | Regulus | E. | 33 45 55 | 3045 | 32 16 38 | 3042 | 30 47 18 | 3039 | 29 17 |
| | Spica ♍ | E. | 87 19 26 | 2977 | 85 48 44 | 2967 | 84 17 50 | 2958 | 82 46 |
| 19 | Sun | W. | 127 31 18 | 3277 | 128 55 57 | 3264 | 130 20 51 | 3252 | 131 45 |
| | α Arietis | W. | 91 45 3 | 2935 | 93 16 38 | 2924 | 94 48 27 | 2911 | 96 20 |
| | Aldebaran | W. | 58 33 52 | 2911 | 60 5 57 | 2898 | 61 38 18 | 2886 | 63 10 |
| | Pollux | W. | 19 7 8 | 3682 | 20 24 14 | 3564 | 21 43 28 | 3464 | 23 4 |
| | Regulus | E. | 21 50 58 | 3055 | 20 21 53 | 3069 | 18 53 5 | 3088 | 17 24 |
| | Spica ♍ | E. | 75 7 57 | 2893 | 73 35 29 | 2880 | 72 2 45 | 2869 | 70 29 |
| | Antares | E. | 120 29 51 | 2918 | 118 57 55 | 2905 | 117 25 43 | 2893 | 115 53 |
| 20 | α Arietis | W. | 104 4 51 | 2836 | 105 38 32 | 2824 | 107 12 29 | 2811 | 108 46 |
| | Aldebaran | W. | 70 58 14 | 2806 | 72 32 34 | 2792 | 74 7 12 | 2778 | 75 42 |
| | Pollux | W. | 30 10 5 | 3099 | 31 38 16 | 3058 | 33 7 17 | 3022 | 34 37 |
| | Spica ♍ | E. | 62 40 47 | 2792 | 61 6 8 | 2778 | 59 31 11 | 2765 | 57 55 |
| | Antares | E. | 108 6 38 | 2812 | 106 32 26 | 2798 | 104 57 56 | 2784 | 103 23 |
| 21 | Aldebaran | W. | 83 41 27 | 2695 | 85 18 14 | 2680 | 86 55 21 | 2666 | 88 32 |
| | Pollux | W. | 42 15 29 | 2850 | 43 48 52 | 2825 | 45 22 47 | 2804 | 46 57 |
| | Spica ♍ | E. | 49 55 10 | 2681 | 48 18 5 | 2668 | 46 40 42 | 2654 | 45 3 |
| | Antares | E. | 95 24 29 | 2700 | 93 47 49 | 2687 | 92 10 51 | 2672 | 90 33 |
| | Mars | E. | 125 55 47 | 2904 | 124 23 33 | 2889 | 122 51 0 | 2874 | 121 18 |
| 22 | Aldebaran | W. | 96 44 35 | 2584 | 98 23 52 | 2570 | 100 3 28 | 2558 | 101 43 |
| | Pollux | W. | 54 55 57 | 2684 | 56 32 58 | 2666 | 58 10 23 | 2649 | 59 48 |
| | Regulus | W. | 17 59 27 | 2776 | 19 34 27 | 2732 | 21 10 25 | 2694 | 22 47 |
| | Spica ♍ | E. | 36 49 47 | 2572 | 35 10 13 | 2559 | 33 30 21 | 2545 | 31 50 |
| | Antares | E. | 82 22 27 | 2590 | 80 43 18 | 2577 | 79 3 52 | 2564 | 77 24 |
| | Mars | E. | 113 28 59 | 2785 | 111 54 12 | 2771 | 110 19 7 | 2757 | 108 43 |
| 23 | Pollux | W. | 68 2 35 | 2557 | 69 42 29 | 2544 | 71 22 41 | 2530 | 73 3 |
| | Regulus | W. | 31 0 47 | 2543 | 32 41 1 | 2524 | 34 21 41 | 2507 | 36 2 |
| | Spica ♍ | E. | 23 24 57 | 2472 | 21 43 4 | 2461 | 20 0 56 | 2450 | 18 18 |
| | Antares | E. | 69 1 6 | 2492 | 67 19 41 | 2480 | 65 38 0 | 2470 | 63 56 |
| | Mars | E. | 100 42 17 | 2678 | 99 5 8 | 2666 | 97 27 43 | 2654 | 95 50 |
| | α Aquilæ | E. | 119 13 3 | 3026 | 117 43 23 | 2998 | 116 13 8 | 2971 | 114 42 |
| 24 | Pollux | W. | 81 29 57 | 2462 | 83 12 4 | 2452 | 84 54 25 | 2443 | 86 36 |
| | Regulus | W. | 44 33 14 | 2423 | 46 16 16 | 2412 | 47 59 34 | 2401 | 49 43 |
| | Antares | E. | 55 22 52 | 2412 | 53 39 35 | 2405 | 51 56 7 | 2398 | 50 12 |
| | Mars | E. | 87 37 44 | 2589 | 85 58 34 | 2580 | 84 19 11 | 2570 | 82 39 |

## MEAN TIME.

### LUNAR DISTANCES.

| ar's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ebaran | W. | 28 39 10 | 3114 | 30 7 3 | 3104 | 31 35 8 | 3095 | 33 3 23 | 3087 |
| ulus | E. | 51 31 3 | 3090 | 50 2 41 | 3087 | 48 34 15 | 3083 | 47 5 45 | 3080 |
| a ny | E. | 105 15 54 | 3056 | 103 46 50 | 3052 | 102 17 41 | 3048 | 100 48 27 | 3042 |
| | W. | 110 51 54 | 3400 | 112 14 11 | 3392 | 113 36 37 | 3383 | 114 59 13 | 3373 |
| rietis | W. | 73 43 17 | 3055 | 75 12 22 | 3047 | 76 41 37 | 3039 | 78 11 2 | 3029 |
| ebaran | W. | 40 27 22 | 3041 | 41 56 44 | 3032 | 43 26 17 | 3022 | 44 56 3 | 3012 |
| ulus | E. | 39 42 13 | 3061 | 38 13 16 | 3057 | 36 44 14 | 3053 | 35 15 7 | 3049 |
| a ny | E. | 93 20 29 | 3010 | 91 50 28 | 3002 | 90 20 18 | 2993 | 88 49 57 | 2985 |
| | W. | 121 54 59 | 3323 | 123 18 44 | 3312 | 124 42 42 | 3301 | 126 6 53 | 3288 |
| rietis | W. | 85 41 6 | 2979 | 87 11 45 | 2969 | 88 42 37 | 2958 | 90 13 43 | 2946 |
| ebaran | W. | 52 28 3 | 2958 | 53 59 8 | 2946 | 55 30 28 | 2935 | 57 2 2 | 2923 |
| ulus | E. | 27 48 29 | 3037 | 26 19 2 | 3038 | 24 49 36 | 3041 | 23 20 14 | 3046 |
| a ny | E. | 81 15 26 | 2937 | 79 43 54 | 2927 | 78 12 9 | 2916 | 76 40 10 | 2905 |
| | W. | 133 11 22 | 3227 | 134 36 59 | 3213 | 136 2 53 | 3201 | 137 29 1 | 3188 |
| rietis | W. | 97 52 52 | 2887 | 99 25 28 | 2875 | 100 58 19 | 2862 | 102 31 27 | 2849 |
| ebaran | W. | 64 43 49 | 2860 | 66 16 59 | 2846 | 67 50 27 | 2833 | 69 24 12 | 2820 |
| ux | W. | 24 27 11 | 3308 | 25 51 13 | 3247 | 27 16 27 | 3191 | 28 42 47 | 3143 |
| ulus | E. | 15 56 54 | 3159 | 14 29 56 | 3223 | 13 4 14 | 3313 | 11 40 18 | 3453 |
| a ny | E. | 68 56 32 | 2844 | 67 23 1 | 2831 | 65 49 13 | 2818 | 64 15 9 | 2805 |
| ares | E. | 114 20 30 | 2866 | 112 47 28 | 2852 | 111 14 8 | 2840 | 109 40 32 | 2826 |
| rietis | W. | 110 21 12 | 2785 | 111 55 59 | 2772 | 113 31 3 | 2760 | 115 6 23 | 2747 |
| ebaran | W. | 77 17 23 | 2750 | 78 52 56 | 2736 | 80 28 48 | 2723 | 82 4 58 | 2708 |
| ux | W. | 36 7 29 | 2958 | 37 38 35 | 2928 | 39 10 19 | 2901 | 40 42 37 | 2874 |
| a ny | E. | 56 20 24 | 2737 | 54 44 33 | 2723 | 53 8 24 | 2710 | 51 31 57 | 2695 |
| ares | E. | 101 48 1 | 2757 | 100 12 36 | 2742 | 98 36 52 | 2728 | 97 0 50 | 2714 |
| ebaran | W. | 90 10 31 | 2638 | 91 48 34 | 2624 | 93 26 56 | 2611 | 95 5 36 | 2597 |
| ux | W. | 48 32 2 | 2760 | 50 7 22 | 2741 | 51 43 8 | 2721 | 53 19 20 | 2702 |
| a ny | E. | 43 24 59 | 2626 | 41 46 39 | 2612 | 40 8 0 | 2599 | 38 29 3 | 2585 |
| ares | E. | 88 55 57 | 2645 | 87 18 3 | 2630 | 85 39 49 | 2617 | 84 1 17 | 2604 |
| s | E. | 119 44 56 | 2844 | 118 11 25 | 2829 | 116 37 35 | 2815 | 115 3 26 | 2801 |
| ebaran | W. | 103 23 33 | 2532 | 105 4 2 | 2520 | 106 44 48 | 2507 | 108 25 51 | 2495 |
| ux | W. | 61 26 22 | 2617 | 63 4 54 | 2602 | 64 43 47 | 2586 | 66 23 1 | 2572 |
| ulus | W. | 24 24 46 | 2632 | 26 2 57 | 2607 | 27 41 42 | 2583 | 29 21 0 | 2562 |
| a ny | E. | 30 9 42 | 2520 | 28 28 56 | 2507 | 26 47 53 | 2495 | 25 6 33 | 2484 |
| ares | E. | 75 44 5 | 2539 | 74 3 46 | 2526 | 72 23 9 | 2514 | 70 42 16 | 2502 |
| s | E. | 107 8 2 | 2730 | 105 32 2 | 2717 | 103 55 44 | 2704 | 102 19 9 | 2691 |
| ux | W. | 74 44 0 | 2506 | 76 25 5 | 2494 | 78 6 27 | 2483 | 79 48 4 | 2472 |
| ulus | W. | 37 44 9 | 2476 | 39 25 56 | 2461 | 41 8 4 | 2448 | 42 50 30 | 2436 |
| a ny | E. | 16 35 54 | 2430 | 14 53 2 | 2422 | 13 9 58 | 2415 | 11 26 44 | 2408 |
| ares | E. | 62 13 53 | 2448 | 60 31 27 | 2439 | 58 48 48 | 2430 | 57 5 56 | 2421 |
| s | E. | 94 12 4 | 2631 | 92 33 51 | 2620 | 90 55 23 | 2610 | 89 16 41 | 2599 |
| quilæ | E. | 113 10 58 | 2921 | 111 39 6 | 2899 | 110 6 46 | 2879 | 108 34 0 | 2858 |
| ux | W. | 88 19 46 | 2425 | 90 2 45 | 2418 | 91 45 54 | 2410 | 93 29 15 | 2403 |
| ulus | W. | 51 26 56 | 2380 | 53 10 59 | 2371 | 54 55 15 | 2362 | 56 39 44 | 2353 |
| ares | E. | 48 28 40 | 2384 | 46 44 43 | 2379 | 45 0 38 | 2373 | 43 16 25 | 2369 |
| s | E. | 80 59 46 | 2553 | 79 19 46 | 2545 | 77 39 35 | 2537 | 75 59 13 | 2530 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 24 | α Aquilæ | E. | 107 0 47 | 2841 | 105 27 12 | 2823 | 103 53 14 | 2808 | 102 18 56 |
| | Saturn | E. | 123 26 7 | 2443 | 121 43 33 | 2433 | 120 0 45 | 2422 | 118 17 42 |
| 25 | Pollux | W. | 95 12 45 | 2397 | 96 56 24 | 2391 | 98 40 12 | 2386 | 100 24 7 |
| | Regulus | W. | 58 24 26 | 2346 | 60 9 18 | 2339 | 61 54 21 | 2331 | 63 39 35 |
| | Antares | E. | 41 32 6 | 2365 | 39 47 41 | 2363 | 38 3 13 | 2361 | 36 18 42 |
| | Mars | E. | 74 18 42 | 2522 | 72 38 0 | 2516 | 70 57 10 | 2510 | 69 16 11 |
| | α Aquilæ | E. | 94 23 10 | 2738 | 92 47 20 | 2730 | 91 11 20 | 2723 | 89 35 11 |
| | Saturn | E. | 109 39 14 | 2371 | 107 54 58 | 2364 | 106 10 32 | 2358 | 104 25 57 |
| | Fomalhaut | E. | 121 46 45 | 2989 | 120 16 18 | 2959 | 118 45 14 | 2931 | 117 13 35 |
| 26 | Pollux | W. | 109 5 11 | 2365 | 110 49 35 | 2363 | 112 34 2 | 2363 | 114 18 30 |
| | Regulus | W. | 72 27 51 | 2300 | 74 13 51 | 2295 | 75 59 58 | 2292 | 77 46 9 |
| | Spica ♍ | W. | 18 26 27 | 2281 | 20 12 54 | 2278 | 21 59 26 | 2273 | 23 46 5 |
| | Antares | E. | 27 36 27 | 2378 | 25 52 20 | 2388 | 24 8 28 | 2402 | 22 24 56 |
| | Mars | E. | 60 49 31 | 2483 | 59 7 54 | 2480 | 57 26 12 | 2477 | 55 44 27 |
| | α Aquilæ | E. | 81 33 3 | 2707 | 79 56 32 | 2708 | 78 20 2 | 2710 | 76 43 35 |
| | Saturn | E. | 95 40 58 | 2327 | 93 55 38 | 2324 | 92 10 13 | 2320 | 90 24 43 |
| | Fomalhaut | E. | 109 28 6 | 2809 | 107 53 51 | 2795 | 106 19 17 | 2783 | 104 44 27 |
| 27 | Regulus | W. | 86 38 5 | 2278 | 88 24 37 | 2278 | 90 11 9 | 2277 | 91 57 43 |
| | Spica ♍ | W. | 32 40 18 | 2259 | 34 27 18 | 2259 | 36 14 18 | 2258 | 38 1 20 |
| | Mars | E. | 47 15 5 | 2470 | 45 33 10 | 2471 | 43 51 16 | 2472 | 42 9 23 |
| | α Aquilæ | E. | 68 43 6 | 2752 | 67 7 35 | 2763 | 65 32 19 | 2778 | 63 57 22 |
| | Saturn | E. | 81 36 19 | 2309 | 79 50 32 | 2307 | 78 4 43 | 2307 | 76 18 54 |
| | Fomalhaut | E. | 96 47 11 | 2736 | 95 11 19 | 2732 | 93 35 21 | 2730 | 91 59 21 |
| | Sun | E. | 132 22 20 | 2589 | 130 43 10 | 2587 | 129 3 57 | 2585 | 127 24 41 |
| 28 | Regulus | W. | 100 50 29 | 2279 | 102 36 59 | 2281 | 104 23 27 | 2283 | 106 9 52 |
| | Spica ♍ | W. | 46 56 33 | 2258 | 48 43 34 | 2260 | 50 30 33 | 2261 | 52 17 30 |
| | Mars | E. | 33 40 44 | 2489 | 31 59 15 | 2495 | 30 17 54 | 2501 | 28 36 42 |
| | α Aquilæ | E. | 56 8 37 | 2905 | 54 36 25 | 2935 | 53 4 51 | 2970 | 51 34 0 |
| | Saturn | E. | 67 29 56 | 2312 | 65 44 14 | 2313 | 63 58 34 | 2315 | 62 12 57 |
| | Fomalhaut | E. | 83 59 19 | 2737 | 82 23 29 | 2743 | 80 47 46 | 2749 | 79 12 11 |
| | Sun | E. | 119 8 8 | 2583 | 117 28 49 | 2584 | 115 49 32 | 2584 | 114 10 13 |
| 29 | Spica ♍ | W. | 61 11 34 | 2273 | 62 58 13 | 2276 | 64 44 48 | 2278 | 66 31 20 |
| | Antares | W. | 16 35 30 | 2508 | 18 16 32 | 2470 | 19 58 27 | 2442 | 21 41 2 |
| | Saturn | E. | 53 25 58 | 2335 | 51 40 49 | 2340 | 49 55 48 | 2344 | 48 10 53 |
| | Fomalhaut | E. | 71 17 15 | 2812 | 69 43 3 | 2828 | 68 9 11 | 2845 | 66 35 41 |
| | Sun | E. | 105 54 26 | 2596 | 104 15 25 | 2598 | 102 36 27 | 2601 | 100 57 33 |
| 30 | Spica ♍ | W. | 75 22 46 | 2298 | 77 8 48 | 2302 | 78 54 45 | 2306 | 80 40 36 |
| | Antares | W. | 30 19 18 | 2373 | 32 3 31 | 2370 | 33 47 49 | 2368 | 35 32 9 |
| | Saturn | E. | 39 28 27 | 2383 | 37 44 28 | 2391 | 36 0 41 | 2401 | 34 17 8 |
| | Fomalhaut | E. | 58 54 50 | 2984 | 57 24 17 | 3015 | 55 54 23 | 3051 | 54 25 13 |
| | Sun | E. | 92 44 10 | 2621 | 91 5 43 | 2625 | 89 27 22 | 2629 | 87 49 7 |
| 31 | Spica ♍ | W. | 89 28 23 | 2331 | 91 13 37 | 2335 | 92 58 45 | 2340 | 94 43 47 |
| | Antares | W. | 44 14 0 | 2371 | 45 58 17 | 2373 | 47 42 31 | 2375 | 49 26 41 |
| | Saturn | E. | 25 43 46 | 2488 | 24 2 16 | 2512 | 22 21 20 | 2541 | 20 41 4 |
| | Fomalhaut | E. | 47 12 16 | 3339 | 45 48 50 | 3407 | 44 26 41 | 3480 | 43 5 55 |
| | Sun | E. | 79 39 18 | 2655 | 78 1 38 | 2661 | 76 24 6 | 2666 | 74 46 40 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 24 | α Aquilæ E. | 100 44 19 | 2779 | 99 9 24 | 2768 | 97 34 14 | 2756 | 95 58 48 | 2747 |
| | Saturn E. | 116 34 25 | 2404 | 114 50 56 | 2395 | 113 7 14 | 2386 | 111 23 19 | 2379 |
| 25 | Pollux W. | 102 8 9 | 2376 | 103 52 18 | 2373 | 105 36 31 | 2370 | 107 20 49 | 2367 |
| | Regulus W. | 65 24 58 | 2319 | 67 10 29 | 2313 | 68 56 9 | 2308 | 70 41 57 | 2304 |
| | Antares E. | 34 34 10 | 2360 | 32 49 38 | 2362 | 31 5 9 | 2365 | 29 20 44 | 2371 |
| | Mars E. | 67 35 4 | 2499 | 65 53 50 | 2495 | 64 12 30 | 2490 | 62 31 3 | 2487 |
| | α Aquilæ E. | 87 58 54 | 2713 | 86 22 32 | 2710 | 84 46 5 | 2708 | 83 9 35 | 2706 |
| | Saturn E. | 102 41 12 | 2346 | 100 56 20 | 2340 | 99 11 19 | 2336 | 97 26 12 | 2331 |
| | Fomalhaut E. | 115 41 23 | 2883 | 114 8 42 | 2862 | 112 35 34 | 2843 | 111 2 2 | 2825 |
| 26 | Pollux W. | 116 2 58 | 2364 | 117 47 25 | 2364 | 119 31 51 | 2366 | 121 16 14 | 2369 |
| | Regulus W. | 79 32 25 | 2285 | 81 18 46 | 2284 | 83 5 9 | 2281 | 84 51 36 | 2280 |
| | Spica ♍ W. | 25 32 48 | 2267 | 27 19 36 | 2265 | 29 6 27 | 2263 | 30 53 21 | 2261 |
| | Antares E. | 20 41 51 | 2446 | 18 59 22 | 2479 | 17 17 39 | 2526 | 15 37 2 | 2591 |
| | Mars E. | 54 2 38 | 2473 | 52 20 47 | 2472 | 50 38 54 | 2471 | 48 57 0 | 2470 |
| | α Aquilæ E. | 75 7 12 | 2719 | 73 30 57 | 2724 | 71 54 49 | 2732 | 70 18 52 | 2741 |
| | Saturn E. | 88 39 8 | 2315 | 86 53 30 | 2313 | 85 7 49 | 2311 | 83 22 5 | 2309 |
| | Fomalhaut E. | 103 9 22 | 2763 | 101 34 5 | 2753 | 99 58 36 | 2746 | 98 22 57 | 2741 |
| 27 | Regulus W. | 93 44 17 | 2277 | 95 30 51 | 2277 | 97 17 25 | 2278 | 99 3 57 | 2278 |
| | Spica ♍ W. | 39 48 23 | 2257 | 41 35 26 | 2257 | 43 22 29 | 2257 | 45 9 32 | 2258 |
| | Mars E. | 40 27 32 | 2475 | 38 45 43 | 2478 | 37 3 59 | 2480 | 35 22 18 | 2485 |
| | α Aquilæ E. | 62 22 45 | 2811 | 60 48 32 | 2831 | 59 14 44 | 2853 | 57 41 25 | 2877 |
| | Saturn E. | 74 33 5 | 2307 | 72 47 16 | 2308 | 71 1 28 | 2309 | 69 15 41 | 2310 |
| | Fomalhaut E. | 90 23 18 | 2728 | 88 47 15 | 2729 | 87 11 13 | 2731 | 85 35 14 | 2734 |
| | Sun E. | 125 45 24 | 2583 | 124 6 6 | 2582 | 122 26 46 | 2583 | 120 47 27 | 2583 |
| 28 | Regulus W. | 107 56 14 | 2287 | 109 42 33 | 2289 | 111 28 49 | 2292 | 113 15 0 | 2295 |
| | Spica ♍ W. | 54 4 24 | 2264 | 55 51 16 | 2266 | 57 38 5 | 2268 | 59 24 52 | 2271 |
| | Mars E. | 26 55 41 | 2518 | 25 14 53 | 2528 | 23 34 19 | 2542 | 21 54 4 | 2558 |
| | α Aquilæ E. | 50 3 57 | 3048 | 48 34 44 | 3095 | 47 6 29 | 3148 | 45 39 17 | 3205 |
| | Saturn E. | 60 27 24 | 2321 | 58 41 55 | 2324 | 56 56 31 | 2328 | 55 11 12 | 2331 |
| | Fomalhaut E. | 77 36 46 | 2765 | 76 1 32 | 2775 | 74 26 32 | 2785 | 72 51 45 | 2798 |
| | Sun E. | 112 31 1 | 2587 | 110 51 48 | 2589 | 109 12 38 | 2591 | 107 33 30 | 2593 |
| 29 | Spica ♍ W. | 68 17 46 | 2284 | 70 4 9 | 2288 | 71 50 26 | 2291 | 73 36 39 | 2295 |
| | Antares W. | 23 24 6 | 2405 | 25 7 33 | 2394 | 26 51 16 | 2385 | 28 35 12 | 2378 |
| | Saturn E. | 46 26 7 | 2355 | 44 41 28 | 2362 | 42 56 58 | 2368 | 41 12 37 | 2375 |
| | Fomalhaut E. | 65 2 34 | 2883 | 63 29 53 | 2905 | 61 57 40 | 2929 | 60 25 58 | 2956 |
| | Sun E. | 99 18 44 | 2607 | 97 39 58 | 2610 | 96 1 17 | 2614 | 94 22 41 | 2618 |
| 30 | Spica ♍ W. | 82 26 22 | 2314 | 84 12 1 | 2318 | 85 57 35 | 2322 | 87 43 2 | 2326 |
| | Antares W. | 37 16 32 | 2366 | 39 0 55 | 2366 | 40 45 18 | 2367 | 42 29 40 | 2368 |
| | Saturn E. | 32 33 50 | 2423 | 30 50 48 | 2436 | 29 8 5 | 2451 | 27 25 43 | 2469 |
| | Fomalhaut E. | 52 56 48 | 3128 | 51 29 13 | 3174 | 50 2 33 | 3225 | 48 36 53 | 3278 |
| | Sun E. | 86 10 57 | 2638 | 84 32 53 | 2642 | 82 54 55 | 2646 | 81 17 3 | 2652 |
| 31 | Spica ♍ W. | 96 28 41 | 2349 | 98 13 29 | 2355 | 99 58 9 | 2359 | 101 42 43 | 2365 |
| | Antares W. | 51 10 47 | 2381 | 52 54 49 | 2385 | 54 38 45 | 2388 | 56 22 37 | 2393 |
| | Saturn E. | 19 1 36 | 2621 | 17 23 10 | 2678 | 15 46 0 | 2754 | 14 10 32 | 2860 |
| | Fomalhaut E. | 41 46 41 | 3656 | 40 29 7 | 3758 | 39 13 21 | 3875 | 37 59 36 | 4005 |
| | Sun E. | 73 9 21 | 2675 | 71 32 8 | 2681 | 69 55 3 | 2687 | 68 18 6 | 2692 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER,

At 6$^h$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | 4· ·1 O | ·3 O2· |
| 2 | 4· ·2 O | 1· 3. |
| 3 | 4· ·1 O | ·2 3· |
| 4 | ·4 3· O | 1· 2· |
| 5 | ·4 3· 2· O | ●·1 |
| 6 | ·4 ·3 ·2 1· O | |
| 7 | ·4 ·3 O | ·1 ·2 |
| 8 | 1· ·4 O | 2· ·3 |
| 9 | ·2 O | 1. ·4 3. |
| 10 | ·1 O | ·2 3· ·4 |

The SATELLITES of JUPITER

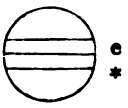
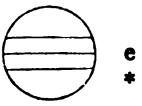
are not visible

from the 10th day of March until the 4th day of May,

JUPITER being too near to the SUN.

This Table represents, at 6$^h$ after *Mean Noon* of each day of the month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (O) in the centre of the page; the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (O) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| | 1 | 19 27 55 ·5 | 18 7 43 ·0 | Em. |
| | 3 | 13 56 41 ·3 | 12 43 27 ·5 | Em. |
| | 5 | 8 25 32 ·0 | 7 19 16 ·9 | Em.  |
| | 7 | 2 54 16 ·3 | 1 54 59 ·8 | Em. |
| | 8 | 21 23 4 ·0 | 20 30 46 ·3 | Em. |
| | 10 | 15 51 48 ·2 | 15 6 29 ·2 | Em. |
| | 3 | 3 1 4 ·6 | 1 46 3 ·1 | Em. |
| | 6 | 16 19 47 ·8 | 15 18 47 ·1 | Em.  |
| | 10 | 5 38 8 ·1 | 4 51 8 ·2 | Em. |
| . | 7 | 14 33 28 ·1 | 13 36 6 ·5 | Em.  |

THE ECLIPSES OF THE SATELLITES OF JUPITER

are not visible

from the 10th day of March until the 4th day of May,

JUPITER being too near to the SUN.

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadow | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egre |
| | d h m | d h m | d h m | d h m | d h m | d h |
| I. | 1 15 18 | | 2 12 30 | 2 14 46 | 2 13 7 | 2 15 |
| | 3 9 55 | | 4 7 8 | 4 9 24 | 4 7 43 | 4 9 |
| | 5 4 33 | In the | 6 1 45 | 6 4 1 | 6 2 19 | 6 4 |
| | 7 23 10 | Shadow. | 7 20 23 | 7 22 39 | 7 20 54 | 8 23 |
| | 8 17 48 | | 9 15 0 | 9 17 16 | 9 15 30 | 9 17 |
| | 10 12 25 | | | | | |
| II. | 2 22 0 | In the | 1 3 41 | 1† 6 21 | 1† 4 58 | 1 7 |
| | 6 11 39 | Shadow. | 4 17 20 | 4 20 0 | 4 18 31 | 4 21 |
| | 10 1 19 | | 8 7 0 | 8 9 39 | 8 8 4 | 8 10 |
| III. | 7 8 39 | In the Shadow. | 3 18 9 | 3 21 15 | 3 20 38 | 4 23 |
| IV. | 8 10 20 | 8 12 7 | | | | |

THE SATELLITES OF JUPITER
are not visible
from the 10th day of March until the 4th day of May,
JUPITER being too near to the SUN.

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·069875 0d·240658 Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|
| | | | | h m s | | | |
| −1 ·2478 | +0 ·8145 | +9 ·6798 | +0 ·6221 | 1 23 10 ·72 | 344 | 59 | ·162 |
| 1 ·2503 | 0 ·7914 | 9 ·6815 | 0 ·6217 | 1 19 14 ·81 | 345 | 60 | ·164 |
| 1 ·2526 | 0 ·7668 | 9 ·6831 | 0 ·6213 | 1 15 18 ·91 | 346 | 61 | ·167 |
| −1 ·2548 | +0 ·7406 | +9 ·6848 | +0 ·6211 | 1 11 23 ·00 | 347 | 62 | ·170 |
| 1 ·2569 | 0 ·7127 | 9 ·6864 | 0 ·6208 | 1 7 27 ·09 | 348 | 63 | ·172 |
| 1 ·2588 | 0 ·6827 | 9 ·6881 | 0 ·6207 | 1 3 31 ·19 | 349 | 64 | ·175 |
| −1 ·2606 | +0 ·6503 | +9 ·6897 | +0 ·6206 | 0 59 35 ·28 | 350 | 65 | ·178 |
| 1 ·2622 | 0 ·6152 | 9 ·6912 | 0 ·6206 | 0 55 39 ·37 | 351 | 66 | ·181 |
| 1 ·2637 | 0 ·5769 | 9 ·6928 | 0 ·6206 | 0 51 43 ·47 | 352 | 67 | ·183 |
| −1 ·2651 | +0 ·5348 | +9 ·6943 | +0 ·6207 | 0 47 47 ·56 | 353 | 68 | ·186 |
| 1 ·2663 | 0 ·4880 | 9 ·6959 | 0 ·6208 | 0 43 51 ·65 | 354 | 69 | ·189 |
| 1 ·2674 | 0 ·4354 | 9 ·6974 | 0 ·6211 | 0 39 55 ·75 | 355 | 70 | ·192 |
| −1 ·2683 | +0 ·3755 | +9 ·6989 | +0 ·6213 | 0 35 59 ·84 | 356 | 71 | ·194 |
| 1 ·2691 | 0 ·3059 | 9 ·7004 | 0 ·6217 | 0 32 3 ·93 | 357 | 72 | ·197 |
| 1 ·2698 | 0 ·2228 | 9 ·7019 | 0 ·6221 | 0 28 8 ·03 | 358 | 73 | ·200 |
| −1 ·2704 | +0 ·1199 | +9 ·7034 | +0 ·6226 | 0 24 12 ·12 | 359 | 74 | ·203 |
| 1 ·2708 | 9 ·9848 | 9 ·7049 | 0 ·6232 | 0 20 16 ·22 | 360 | 75 | ·205 |
| 1 ·2711 | 9 ·7874 | 9 ·7064 | 0 ·6238 | 0 16 20 ·31 | 361 | 76 | ·208 |
| −1 ·2713 | +9 ·4155 | +9 ·7078 | +0 ·6245 | 0 12 24 ·40 | 362 | 77 | ·211 |
| 1 ·2713 | −8 ·9642 | 9 ·7093 | 0 ·6252 | 0 8 28 ·50 | 363 | 78 | ·214 |
| 1 ·2712 | 9 ·6477 | 9 ·7107 | 0 ·6260 | 0 4 32 ·59 | 364 | 79 | ·216 |
| −1 ·2710 | −9 ·9010 | +9 ·7122 | +0 ·6269 | {0 0 26 ·68 / 23 56 40 ·78} | 365 | 80 | ·219 |
| 1 ·2706 | 0 ·0598 | 9 ·7136 | 0 ·6279 | 23 52 44 ·87 | 0 | 81 | ·222 |
| 1 ·2701 | 0 ·1756 | 9 ·7150 | 0 ·6289 | 23 48 48 ·96 | 1 | 82 | ·225 |
| −1 ·2695 | −0 ·2669 | +9 ·7165 | +0 ·6299 | 23 44 53 ·06 | 2 | 83 | ·227 |
| 1 ·2688 | 0 ·3421 | 9 ·7179 | 0 ·6311 | 23 40 57 ·15 | 3 | 84 | ·230 |
| 1 ·2679 | 0 ·4060 | 9 ·7194 | 0 ·6323 | 23 37 1 ·24 | 4 | 85 | ·233 |
| −1 ·2669 | −0 ·4616 | +9 ·7208 | +0 ·6335 | 23 33 5 ·34 | 5 | 86 | ·235 |
| 1 ·2657 | 0 ·5107 | 9 ·7223 | 0 ·6348 | 23 29 9 ·43 | 6 | 87 | ·238 |
| 1 ·2645 | 0 ·5547 | 9 ·7237 | 0 ·6362 | 23 25 13 ·52 | 7 | 88 | ·241 |
| 1 ·2631 | 0 ·5945 | 9 ·7252 | 0 ·6376 | 23 21 17 ·62 | 8 | 89 | ·244 |
| −1 ·2615 | −0 ·6308 | +9 ·7266 | +0 ·6391 | 23 17 21 ·71 | 9 | 90 | ·246 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | THE SUN'S Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, to be added to / subt. from Apparent Time. |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Tues. | 1 | 0 42 45 ·60 | 9 ·100 | N. 4 36 8 ·0 | 57 ·71 | 1 4 ·43 | 3 56 ·22 |
| Wed. | 2 | 0 46 23 ·99 | 9 ·105 | 4 59 13 ·0 | 57 ·49 | 1 4 ·45 | 3 38 ·10 |
| Thur. | 3 | 0 50 2 ·52 | 9 ·112 | 5 22 12 ·7 | 57 ·26 | 1 4 ·47 | 3 20 ·13 |
| Frid. | 4 | 0 53 41 ·22 | 9 ·119 | 5 45 6 ·9 | 57 ·01 | 1 4 ·49 | 3 2 ·32 |
| Sat. | 5 | 0 57 20 ·08 | 9 ·128 | 6 7 55 ·1 | 56 ·75 | 1 4 ·52 | 2 44 ·68 |
| *Sun.* | 6 | 1 0 59 ·15 | 9 ·136 | 6 30 37 ·0 | 56 ·47 | 1 4 ·55 | 2 27 ·24 |
| Mon. | 7 | 1 4 38 ·42 | 9 ·145 | 6 53 12 ·2 | 56 ·17 | 1 4 ·58 | 2 10 ·01 |
| Tues. | 8 | 1 8 17 ·91 | 9 ·155 | 7 15 40 ·3 | 55 ·87 | 1 4 ·61 | 1 53 ·00 |
| Wed. | 9 | 1 11 57 ·65 | 9 ·165 | 7 38 1 ·1 | 55 ·54 | 1 4 ·65 | 1 36 ·22 |
| Thur. | 10 | 1 15 37 ·62 | 9 ·176 | 8 0 14 ·0 | 55 ·20 | 1 4 ·69 | 1 19 ·69 |
| Frid. | 11 | 1 19 17 ·85 | 9 ·188 | 8 22 18 ·9 | 54 ·85 | 1 4 ·73 | 1 3 ·41 |
| Sat. | 12 | 1 22 58 ·37 | 9 ·200 | 8 44 15 ·3 | 54 ·48 | 1 4 ·77 | 0 47 ·42 |
| *Sun.* | 13 | 1 26 39 ·17 | 9 ·213 | 9 6 2 ·9 | 54 ·10 | 1 4 ·82 | 0 31 ·71 |
| Mon. | 14 | 1 30 20 ·28 | 9 ·227 | 9 27 41 ·4 | 53 ·71 | 1 4 ·87 | 0 16 ·31 |
| Tues. | 15 | 1 34 1 ·72 | 9 ·240 | 9 49 10 ·4 | 53 ·30 | 1 4 ·92 | 0 1 ·24 |
| Wed. | 16 | 1 37 43 ·49 | 9 ·255 | 10 10 29 ·6 | 52 ·88 | 1 4 ·97 | 0 13 ·50 |
| Thur. | 17 | 1 41 25 ·61 | 9 ·271 | 10 31 38 ·8 | 52 ·45 | 1 5 ·03 | 0 27 ·90 |
| Frid. | 18 | 1 45 8 ·11 | 9 ·287 | 10 52 37 ·5 | 52 ·00 | 1 5 ·09 | 0 41 ·92 |
| Sat. | 19 | 1 48 50 ·98 | 9 ·304 | 11 13 25 ·4 | 51 ·54 | 1 5 ·15 | 0 55 ·56 |
| *Sun.* | 20 | 1 52 34 ·27 | 9 ·321 | 11 34 2 ·3 | 51 ·06 | 1 5 ·21 | 1 8 ·79 |
| Mon. | 21 | 1 56 17 ·97 | 9 ·339 | 11 54 27 ·8 | 50 ·57 | 1 5 ·28 | 1 21 ·61 |
| Tues. | 22 | 2 0 2 ·11 | 9 ·358 | 12 14 41 ·6 | 50 ·08 | 1 5 ·34 | 1 33 ·99 |
| Wed. | 23 | 2 3 46 ·70 | 9 ·378 | 12 34 43 ·5 | 49 ·56 | 1 5 ·41 | 1 45 ·92 |
| Thur. | 24 | 2 7 31 ·76 | 9 ·398 | 12 54 33 ·0 | 49 ·04 | 1 5 ·48 | 1 57 ·38 |
| Frid. | 25 | 2 11 17 ·31 | 9 ·419 | 13 14 9 ·9 | 48 ·50 | 1 5 ·55 | 2 8 ·35 |
| Sat. | 26 | 2 15 3 ·37 | 9 ·440 | 13 33 33 ·9 | 47 ·95 | 1 5 ·62 | 2 18 ·82 |
| *Sun.* | 27 | 2 18 49 ·93 | 9 ·462 | 13 52 44 ·6 | 47 ·38 | 1 5 ·69 | 2 28 ·78 |
| Mon. | 28 | 2 22 37 ·01 | 9 ·485 | 14 11 41 ·7 | 46 ·80 | 1 5 ·76 | 2 38 ·23 |
| Tues. | 29 | 2 26 24 ·64 | 9 ·507 | 14 30 24 ·9 | 46 ·21 | 1 5 ·84 | 2 47 ·13 |
| Wed. | 30 | 2 30 12 ·81 | 9 ·530 | 14 48 54 ·0 | 45 ·60 | 1 5 ·91 | 2 55 ·49 |
| Thur. | 31 | 2 34 1 ·53 | | N. 15 7 8 ·4 | | 1 5 ·99 | 3 3 ·31 |

* *Mean Time* of the Semidiameter passing may be found by subtracting 0s·18 from the *Sidereal*

## AT MEAN NOON.

| Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be subt. from / added to Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|
| | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| 1 | 0 42 45 ·01 | N. 4 36 4 ·2 | 16 0 ·8 | 3 56 ·27 | 0 38 48 ·74 |
| 2 | 0 46 23 ·44 | 4 59 9 ·5 | 16 0 ·5 | 3 38 ·14 | 0 42 45 ·29 |
| 3 | 0 50 2 ·02 | 5 22 9 ·6 | 16 0 ·2 | 3 20 ·17 | 0 46 41 ·84 |
| 4 | 0 53 40 ·76 | 5 45 4 ·0 | 16 0 ·0 | 3 2 ·36 | 0 50 38 ·40 |
| 5 | 0 57 19 ·67 | 6 7 52 ·5 | 15 59 ·7 | 2 44 ·72 | 0 54 34 ·95 |
| 6 | 1 0 58 ·78 | 6 30 34 ·7 | 15 59 ·4 | 2 27 ·27 | 0 58 31 ·50 |
| 7 | 1 4 38 ·09 | 6 53 10 ·1 | 15 59 ·1 | 2 10 ·04 | 1 2 28 ·06 |
| 8 | 1 8 17 ·63 | 7 15 38 ·5 | 15 58 ·9 | 1 53 ·02 | 1 6 24 ·61 |
| 9 | 1 11 57 ·40 | 7 37 59 ·6 | 15 58 ·6 | 1 36 ·24 | 1 10 21 ·16 |
| 10 | 1 15 37 ·42 | 8 0 12 ·8 | 15 58 ·3 | 1 19 ·70 | 1 14 17 ·71 |
| 11 | 1 19 17 ·69 | 8 22 17 ·9 | 15 58 ·0 | 1 3 ·42 | 1 18 14 ·27 |
| 12 | 1 22 58 ·25 | 8 44 14 ·5 | 15 57 ·8 | 0 47 ·43 | 1 22 10 ·82 |
| 13 | 1 26 39 ·09 | 9 6 2 ·4 | 15 57 ·5 | 0 31 ·72 | 1 26 7 ·37 |
| 14 | 1 30 20 ·24 | 9 27 41 ·1 | 15 57 ·3 | 0 16 ·31 | 1 30 3 ·93 |
| 15 | 1 34 1 ·71 | 9 49 10 ·4 | 15 57 ·0 | 0 1 ·24 | 1 34 0 ·48 |
| 16 | 1 37 43 ·52 | 10 10 29 ·8 | 15 56 ·7 | 0 13 ·51 | 1 37 57 ·03 |
| 17 | 1 41 25 ·68 | 10 31 39 ·2 | 15 56 ·5 | 0 27 ·90 | 1 41 53 ·58 |
| 18 | 1 45 8 ·22 | 10 52 38 ·1 | 15 56 ·2 | 0 41 ·92 | 1 45 50 ·14 |
| 19 | 1 48 51 ·13 | 11 13 26 ·2 | 15 56 ·0 | 0 55 ·57 | 1 49 46 ·69 |
| 20 | 1 52 34 ·44 | 11 34 3 ·3 | 15 55 ·7 | 1 8 ·80 | 1 53 43 ·25 |
| 21 | 1 56 18 ·18 | 11 54 29 ·0 | 15 55 ·4 | 1 21 ·62 | 1 57 39 ·80 |
| 22 | 2 0 2 ·35 | 12 14 43 ·0 | 15 55 ·2 | 1 34 ·00 | 2 1 36 ·35 |
| 23 | 2 3 46 ·98 | 12 34 44 ·9 | 15 54 ·9 | 1 45 ·93 | 2 5 32 ·91 |
| 24 | 2 7 32 ·07 | 12 54 34 ·6 | 15 54 ·7 | 1 57 ·39 | 2 9 29 ·46 |
| 25 | 2 11 17 ·65 | 13 14 11 ·6 | 15 54 ·4 | 2 8 ·37 | 2 13 26 ·01 |
| 26 | 2 15 3 ·73 | 13 33 35 ·7 | 15 54 ·2 | 2 18 ·84 | 2 17 22 ·57 |
| 27 | 2 18 50 ·32 | 13 52 46 ·6 | 15 53 ·9 | 2 28 ·80 | 2 21 19 ·12 |
| 28 | 2 22 37 ·43 | 14 11 43 ·8 | 15 53 ·7 | 2 38 ·25 | 2 25 15 ·68 |
| 29 | 2 26 25 ·08 | 14 30 27 ·1 | 15 53 ·4 | 2 47 ·15 | 2 29 12 ·23 |
| 30 | 2 30 13 ·28 | 14 48 56 ·2 | 15 53 ·2 | 2 55 ·51 | 2 33 8 ·79 |
| 31 | 2 34 2 ·02 | N. 15 7 10 ·7 | 15 52 ·9 | 3 3 ·32 | 2 37 5 ·34 |

The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 11 37 31 ·1 | N.0 ·37 | 0 ·0000469 | 15 59 ·8 | 15 57 ·3 | 58 42 ·4 | 58 33 ·0 |
| 2 | 12 36 37 ·8 | 0 ·42 | 0 ·0001747 | 15 54 ·5 | 15 51 ·4 | 58 22 ·7 | 58 11 ·[illegible] |
| 3 | 13 35 42 ·8 | 0 ·44 | 0 ·0003020 | 15 48 ·1 | 15 44 ·5 | 57 59 ·3 | 57 46 ·1 |
| 4 | 14 34 45 ·9 | 0 ·43 | 0 ·0004289 | 15 40 ·7 | 15 36 ·7 | 57 32 ·3 | 57 17 ·6 |
| 5 | 15 33 47 ·0 | 0 ·39 | 0 ·0005550 | 15 32 ·6 | 15 28 ·3 | 57 2 ·3 | 56 46 ·5 |
| 6 | 16 32 46 ·3 | 0 ·32 | 0 ·0006803 | 15 23 ·8 | 15 19 ·4 | 56 30 ·2 | 56 13 ·8 |
| 7 | 17 31 43 ·6 | 0 ·23 | 0 ·0008047 | 15 14 ·9 | 15 10 ·7 | 55 57 ·6 | 55 41 ·5 |
| 8 | 18 30 38 ·8 | N.0 ·12 | 0 ·0009283 | 15 6 ·4 | 15 2 ·4 | 55 26 ·2 | 55 11 ·5 |
| 9 | 19 29 32 ·0 | 0 ·00 | 0 ·0010508 | 14 58 ·6 | 14 55 ·2 | 54 57 ·8 | 54 45 ·3 |
| 10 | 20 28 22 ·9 | S.0 ·14 | 0 ·0011724 | 14 52 ·3 | 14 49 ·8 | 54 34 ·4 | 54 25 ·3 |
| 11 | 21 27 11 ·6 | 0 ·27 | 0 ·0012932 | 14 47 ·8 | 14 46 ·4 | 54 18 ·0 | 54 12 ·9 |
| 12 | 22 25 58 ·1 | 0 ·39 | 0 ·0014131 | 14 45 ·7 | 14 45 ·6 | 54 10 ·3 | 54 9 ·9 |
| 13 | 23 24 42 ·4 | 0 ·49 | 0 ·0015324 | 14 46 ·2 | 14 47 ·4 | 54 12 ·0 | 54 16 ·5 |
| 14 | 24 23 24 ·4 | 0 ·58 | 0 ·0016512 | 14 49 ·4 | 14 52 ·1 | 54 23 ·9 | 54 33 ·9 |
| 15 | 25 22 4 ·2 | 0 ·64 | 0 ·0017693 | 14 55 ·5 | 14 59 ·5 | 54 46 ·3 | 55 1 ·1 |
| 16 | 26 20 41 ·8 | 0 ·68 | 0 ·0018870 | 15 4 ·2 | 15 9 ·5 | 55 18 ·3 | 55 37 ·5 |
| 17 | 27 19 17 ·1 | 0 ·68 | 0 ·0020044 | 15 15 ·2 | 15 21 ·3 | 55 58 ·7 | 56 21 ·1 |
| 18 | 28 17 50 ·3 | 0 ·66 | 0 ·0021215 | 15 27 ·8 | 15 34 ·5 | 56 44 ·8 | 57 9 ·3 |
| 19 | 29 16 21 ·3 | 0 ·60 | 0 ·0022382 | 15 41 ·2 | 15 47 ·8 | 57 33 ·9 | 57 58 ·3 |
| 20 | 30 14 50 ·3 | 0 ·51 | 0 ·0023548 | 15 54 ·3 | 16 0 ·4 | 58 22 ·0 | 58 44 ·6 |
| 21 | 31 13 17 ·3 | 0 ·41 | 0 ·0024712 | 16 6 ·1 | 16 11 ·1 | 59 5 ·3 | 59 23 ·8 |
| 22 | 32 11 42 ·4 | 0 ·29 | 0 ·0025874 | 16 15 ·5 | 16 19 ·0 | 59 39 ·7 | 59 52 ·8 |
| 23 | 33 10 5 ·7 | 0 ·15 | 0 ·0027035 | 16 21 ·7 | 16 23 ·5 | 60 2 ·5 | 60 9 ·0 |
| 24 | 34 8 27 ·2 | S.0 ·01 | 0 ·0028192 | 16 24 ·2 | 16 24 ·1 | 60 11 ·8 | 60 11 ·5 |
| 25 | 35 6 47 ·0 | N.0 ·12 | 0 ·0029346 | 16 23 ·1 | 16 21 ·4 | 60 7 ·8 | 60 1 ·4 |
| 26 | 36 5 5 ·3 | 0 ·24 | 0 ·0030496 | 16 19 ·0 | 16 15 ·9 | 59 52 ·7 | 59 41 ·2 |
| 27 | 37 3 22 ·0 | 0 ·35 | 0 ·0031640 | 16 12 ·3 | 16 8 ·4 | 59 28 ·1 | 59 13 ·7 |
| 28 | 38 1 37 ·1 | 0 ·43 | 0 ·0032775 | 16 4 ·2 | 15 59 ·7 | 58 58 ·3 | 58 42 ·0 |
| 29 | 38 59 50 ·8 | 0 ·48 | 0 ·0033901 | 15 55 ·2 | 15 50 ·6 | 58 25 ·5 | 58 8 ·6 |
| 30 | 39 58 3 ·1 | 0 ·51 | 0 ·0035016 | 15 46 ·0 | 15 41 ·5 | 57 51 ·7 | 57 35 ·1 |
| 31 | 40 56 13 ·8 | N.0 ·51 | 0 ·0036118 | 15 37 ·0 | 15 32 ·5 | 57 18 ·7 | 57 2 ·2 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Tues. | 1 | 305 1 27·5 | 311 59 20·8 | N.4 47 26·0 | N.4 59 3·3 | 24·2 | 20 29·0 |
| Wed. | 2 | 318 55 18·8 | 325 49 6·8 | 5 6 14·5 | 5 8 56·0 | 25·2 | 21 19·2 |
| Thur. | 3 | 332 40 29·5 | 339 29 10·8 | 5 7 10·5 | 5 1 4·0 | 26·2 | 22 7·6 |
| Frid. | 4 | 346 14 54·5 | 352 57 24·8 | 4 50 46·8 | 4 36 33·0 | 27·2 | 22 55·0 |
| Sat. | 5 | 359 36 27·5 | 6 11 49·7 | 4 18 40·0 | 3 57 28·3 | 28·2 | 23 42·1 |
| Sun. | 6 | 12 43 21·3 | 19 10 55·4 | 3 33 20·0 | 3 6 39·7 | 29·2 | ☌ |
| Mon. | 7 | 25 34 28·2 | 31 54 0·5 | 2 37 52·1 | 2 7 22·9 | 0·7 | 0 29·4 |
| Tues. | 8 | 38 9 36·5 | 44 21 25·3 | 1 35 37·4 | N.1 3 0·2 | 1·7 | 1 17·1 |
| Wed. | 9 | 50 29 40·2 | 56 34 38·1 | N.0 29 55·1 | S.0 3 15·1 | 2·7 | 2 5·4 |
| Thur. | 10 | 62 36 40·3 | 68 36 11·1 | S.0 36 9·0 | 1 8 26·9 | 3·7 | 2 54·1 |
| Frid. | 11 | 74 33 38·2 | 80 29 32·2 | 1 39 50·1 | 2 10 1·7 | 4·7 | 3 42·8 |
| Sat. | 12 | 86 24 25·9 | 92 18 53·4 | 2 38 44·9 | 3 5 44·9 | 5·7 | 4 31·2 |
| Sun. | 13 | 98 13 31·3 | 104 8 56·5 | 3 30 46·8 | 3 53 36·9 | 6·7 | 5 18·9 |
| Mon. | 14 | 110 5 46·5 | 116 4 39·0 | 4 14 1·6 | 4 31 47·6 | 7·7 | 6 5·7 |
| Tues. | 15 | 122 6 11·1 | 128 10 58·9 | 4 46 42·1 | 4 58 31·9 | 8·7 | 6 51·7 |
| Wed. | 16 | 134 19 36·5 | 140 32 35·8 | 5 7 4·8 | 5 12 8·6 | 9·7 | 7 37·1 |
| Thur. | 17 | 146 50 24·9 | 153 13 28·2 | 5 13 32·6 | 5 11 6·0 | 10·7 | 8 22·6 |
| Frid. | 18 | 159 42 4·8 | 166 16 28·1 | 5 4 41·0 | 4 54 11·5 | 11·7 | 9 8·7 |
| Sat. | 19 | 172 56 44·7 | 179 42 54·3 | 4 39 34·6 | 4 20 51·6 | 12·7 | 9 56·2 |
| Sun. | 20 | 186 34 48·5 | 193 32 11·7 | 3 58 7·9 | 3 31 34·8 | 13·7 | 10 46·0 |
| Mon. | 21 | 200 34 40·4 | 207 41 44·2 | 3 1 29·0 | 2 28 13·5 | 14·7 | 11 38·8 |
| Tues. | 22 | 214 52 46·4 | 222 7 5·6 | 1 52 17·2 | S.1 14 14·4 | 15·7 | 12 34·9 |
| Wed. | 23 | 229 23 56·4 | 236 42 31·6 | S.0 34 44·0 | N.0 5 31·7 | 16·7 | 13 34·0 |
| Thur. | 24 | 244 ♑ 3·7 | 251 21 46·2 | N.0 45 48·6 | 1 25 22·0 | 17·7 | 14 35·0 |
| Frid. | 25 | 258 40 54·7 | 265 58 49·1 | 2 3 28·9 | 2 39 28·6 | 18·7 | 15 36·2 |
| Sat. | 26 | 273 14 53·1 | 280 28 36·0 | 3 12 44·3 | 3 42 44·0 | 19·7 | 16 35·8 |
| Sun. | 27 | 287 39 31·6 | 294 47 19·0 | 4 9 1·0 | 4 31 14·3 | 20·7 | 17 32·6 |
| Mon. | 28 | 301 51 42·3 | 308 52 29·7 | 4 49 8·6 | 5 2 33·5 | 21·7 | 18 26·1 |
| Tues. | 29 | 315 49 33·1 | 322 42 48·0 | 5 11 24·1 | 5 15 40·0 | 22·7 | 19 16·7 |
| Wed. | 30 | 329 32 12·4 | 336 17 46·2 | 5 15 25·3 | 5 10 47·7 | 23·7 | 20 5·0 |
| Thur. | 31 | 342 59 31·5 | 349 37 31·0 | N.5 1 57·2 | N.4 49 8·8 | 24·7 | 20 51·9 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 20 24 44 ·49 | S. 14 22 24 ·6 | 93 ·60 |
| 1 | 20 27 2 ·80 | 14 13 3 ·0 | 94 ·38 |
| 2 | 20 29 20 ·85 | 14 3 36 ·7 | 95 ·17 |
| 3 | 20 31 38 ·66 | 13 54 5 ·7 | 95 ·93 |
| 4 | 20 33 56 ·23 | 13 44 30 ·1 | 96 ·68 |
| 5 | 20 36 13 ·56 | 13 34 50 ·0 | 97 ·42 |
| 6 | 20 38 30 ·64 | 13 25 5 ·5 | 98 ·15 |
| 7 | 20 40 47 ·48 | 13 15 16 ·6 | 98 ·87 |
| 8 | 20 43 4 ·08 | 13 5 23 ·4 | 99 ·57 |
| 9 | 20 45 20 ·44 | 12 55 26 ·0 | 100 ·27 |
| 10 | 20 47 36 ·56 | 12 45 24 ·4 | 100 ·93 |
| 11 | 20 49 52 ·44 | 12 35 18 ·8 | 101 ·62 |
| 12 | 20 52 8 ·09 | 12 25 9 ·1 | 102 ·27 |
| 13 | 20 54 23 ·51 | 12 14 55 ·5 | 102 ·93 |
| 14 | 20 56 38 ·69 | 12 4 37 ·9 | 103 ·55 |
| 15 | 20 58 53 ·64 | 11 54 16 ·6 | 104 ·17 |
| 16 | 21 1 8 ·36 | 11 43 51 ·6 | 104 ·78 |
| 17 | 21 3 22 ·85 | 11 33 22 ·9 | 105 ·38 |
| 18 | 21 5 37 ·11 | 11 22 50 ·6 | 105 ·97 |
| 19 | 21 7 51 ·15 | 11 12 14 ·8 | 106 ·53 |
| 20 | 21 10 4 ·97 | 11 1 35 ·6 | 107 ·10 |
| 21 | 21 12 18 ·57 | 10 50 53 ·0 | 107 ·65 |
| 22 | 21 14 31 ·94 | 10 40 7 ·1 | 108 ·18 |
| 23 | 21 16 45 ·10 | S. 10 29 18 ·0 | 108 ·70 |
| | *WEDNESDAY* 2. | | |
| 0 | 21 18 58 ·04 | S. 10 18 25 ·8 | 109 ·22 |
| 1 | 21 21 10 ·77 | 10 7 30 ·5 | 109 ·72 |
| 2 | 21 23 23 ·29 | 9 56 32 ·2 | 110 ·20 |
| 3 | 21 25 35 ·60 | 9 45 31 ·0 | 110 ·68 |
| 4 | 21 27 47 ·71 | 9 34 26 ·9 | 111 ·15 |
| 5 | 21 29 59 ·61 | 9 23 20 ·0 | 111 ·60 |
| 6 | 21 32 11 ·31 | 9 12 10 ·4 | 112 ·05 |
| 7 | 21 34 22 ·80 | 9 0 58 ·1 | 112 ·47 |
| 8 | 21 36 34 ·10 | 8 49 43 ·3 | 112 ·90 |
| 9 | 21 38 45 ·20 | 8 38 25 ·9 | 113 ·30 |
| 10 | 21 40 56 ·10 | 8 27 6 ·1 | 113 ·68 |
| 11 | 21 43 6 ·82 | 8 15 44 ·0 | 114 ·08 |
| 12 | 21 45 17 ·34 | 8 4 19 ·5 | 114 ·45 |
| 13 | 21 47 27 ·68 | 7 52 52 ·8 | 114 ·82 |
| 14 | 21 49 37 ·83 | 7 41 23 ·9 | 115 ·17 |
| 15 | 21 51 47 ·80 | 7 29 52 ·9 | 115 ·50 |
| 16 | 21 53 57 ·60 | 7 18 19 ·9 | 115 ·83 |
| 17 | 21 56 7 ·21 | 7 6 44 ·9 | 116 ·13 |
| 18 | 21 58 16 ·65 | 6 55 8 ·1 | 116 ·45 |
| 19 | 22 0 25 ·92 | 6 43 29 ·4 | 116 ·73 |
| 20 | 22 2 35 ·02 | 6 31 49 ·0 | 117 ·02 |
| 21 | 22 4 43 ·95 | 6 20 6 ·9 | 117 ·28 |
| 22 | 22 6 52 ·72 | 6 8 23 ·2 | 117 ·53 |
| 23 | 22 9 1 ·33 | 5 56 38 ·0 | 117 ·78 |
| 24 | 22 11 9 ·78 | S. 5 44 51 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 11 9 ·78 | S. 5 44 51 ·3 | 118 ·02 |
| 1 | 22 13 18 ·07 | 5 33 3 ·2 | 118 ·22 |
| 2 | 22 15 26 ·21 | 5 21 13 ·8 | 118 ·45 |
| 3 | 22 17 34 ·20 | 5 9 23 ·1 | 118 ·65 |
| 4 | 22 19 42 ·05 | 4 57 31 ·2 | 118 ·85 |
| 5 | 22 21 49 ·74 | 4 45 38 ·1 | 119 ·02 |
| 6 | 22 23 57 ·29 | 4 33 44 ·0 | 119 ·18 |
| 7 | 22 26 4 ·70 | 4 21 48 ·9 | 119 ·33 |
| 8 | 22 28 11 ·98 | 4 9 52 ·9 | 119 ·48 |
| 9 | 22 30 19 ·12 | 3 57 56 ·0 | 119 ·62 |
| 10 | 22 32 26 ·12 | 3 45 58 ·3 | 119 ·73 |
| 11 | 22 34 33 ·00 | 3 33 59 ·9 | 119 ·85 |
| 12 | 22 36 39 ·75 | 3 22 0 ·8 | 119 ·95 |
| 13 | 22 38 46 ·38 | 3 10 1 ·1 | 120 ·05 |
| 14 | 22 40 52 ·88 | 2 58 0 ·8 | 120 ·12 |
| 15 | 22 42 59 ·27 | 2 46 0 ·1 | 120 ·18 |
| 16 | 22 45 5 ·55 | 2 33 59 ·0 | 120 ·23 |
| 17 | 22 47 11 ·70 | 2 21 57 ·6 | 120 ·30 |
| 18 | 22 49 17 ·75 | 2 9 55 ·8 | 120 ·32 |
| 19 | 22 51 23 ·69 | 1 57 53 ·9 | 120 ·35 |
| 20 | 22 53 29 ·53 | 1 45 51 ·8 | 120 ·37 |
| 21 | 22 55 35 ·26 | 1 33 49 ·6 | 120 ·37 |
| 22 | 22 57 40 ·89 | 1 21 47 ·4 | 120 ·35 |
| 23 | 22 59 46 ·43 | S. 1 9 45 ·3 | 120 ·35 |
| | *FRIDAY* 4. | | |
| 0 | 23 1 51 ·87 | S. 0 57 43 ·2 | 120 ·32 |
| 1 | 23 3 57 ·22 | 0 45 41 ·3 | 120 ·27 |
| 2 | 23 6 2 ·49 | 0 33 39 ·7 | 120 ·23 |
| 3 | 23 8 7 ·66 | 0 21 38 ·3 | 120 ·17 |
| 4 | 23 10 12 ·76 | S. 0 9 37 ·3 | 120 ·08 |
| 5 | 23 12 17 ·77 | N. 0 2 23 ·2 | 120 ·02 |
| 6 | 23 14 22 ·71 | 0 14 23 ·3 | 119 ·93 |
| 7 | 23 16 27 ·57 | 0 26 22 ·9 | 119 ·82 |
| 8 | 23 18 32 ·35 | 0 38 21 ·8 | 119 ·72 |
| 9 | 23 20 37 ·07 | 0 50 20 ·1 | 119 ·60 |
| 10 | 23 22 41 ·72 | 1 2 17 ·7 | 119 ·45 |
| 11 | 23 24 46 ·31 | 1 14 14 ·4 | 119 ·32 |
| 12 | 23 26 50 ·83 | 1 26 10 ·3 | 119 ·17 |
| 13 | 23 28 55 ·29 | 1 38 5 ·3 | 119 ·00 |
| 14 | 23 30 59 ·70 | 1 49 59 ·3 | 118 ·83 |
| 15 | 23 33 4 ·05 | 2 1 52 ·3 | 118 ·65 |
| 16 | 23 35 8 ·35 | 2 13 44 ·2 | 118 ·47 |
| 17 | 23 37 12 ·60 | 2 25 35 ·0 | 118 ·25 |
| 18 | 23 39 16 ·80 | 2 37 24 ·5 | 118 ·05 |
| 19 | 23 41 20 ·96 | 2 49 12 ·8 | 117 ·83 |
| 20 | 23 43 25 ·08 | 3 0 59 ·8 | 117 ·58 |
| 21 | 23 45 29 ·15 | 3 12 45 ·3 | 117 ·37 |
| 22 | 23 47 33 ·19 | 3 24 29 ·5 | 117 ·10 |
| 23 | 23 49 37 ·19 | 3 36 12 ·1 | 116 ·85 |
| 24 | 23 51 41 ·16 | N. 3 47 53 ·2 | |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|
| *SATURDAY* 5. | | | | *MONDAY* 7. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 41 ·16 | N. 3 47 53 ·2 | 116 ·58 | 0 | 1 30 53 ·02 | N.12 20 37 ·4 | 93 ·38 |
| 45 ·10 | 3 59 32 ·7 | 116 ·30 | 1 | 1 32 57 ·72 | 12 29 57 ·7 | 92 ·72 |
| 49 ·01 | 4 11 10 ·5 | 116 ·02 | 2 | 1 35 2 ·46 | 12 39 14 ·0 | 92 ·02 |
| 52 ·89 | 4 22 46 ·6 | 115 ·72 | 3 | 1 37 7 ·26 | 12 48 26 ·1 | 91 ·33 |
| 56 ·76 | 4 34 20 ·9 | 115 ·40 | 4 | 1 39 12 ·11 | 12 57 34 ·1 | 90 ·65 |
| 0 ·60 | 4 45 53 ·3 | 115 ·10 | 5 | 1 41 17 ·00 | 13 6 38 ·0 | 89 ·93 |
| 4 ·42 | 4 57 23 ·9 | 114 ·77 | 6 | 1 43 21 ·95 | 13 15 37 ·6 | 89 ·23 |
| 8 ·22 | 5 8 52 ·5 | 114 ·43 | 7 | 1 45 26 ·95 | 13 24 33 ·0 | 88 ·50 |
| 12 ·01 | 5 20 19 ·1 | 114 ·08 | 8 | 1 47 32 ·01 | 13 33 24 ·0 | 87 ·80 |
| 15 ·79 | 5 31 43 ·6 | 113 ·73 | 9 | 1 49 37 ·11 | 13 42 10 ·8 | 87 ·07 |
| 19 ·56 | 5 43 6 ·0 | 113 ·38 | 10 | 1 51 42 ·27 | 13 50 53 ·2 | 86 ·32 |
| 23 ·32 | 5 54 26 ·3 | 113 ·00 | 11 | 1 53 47 ·49 | 13 59 31 ·1 | 85 ·58 |
| 27 ·07 | 6 5 44 ·3 | 112 ·62 | 12 | 1 55 52 ·76 | 14 8 4 ·6 | 84 ·83 |
| 30 ·82 | 6 17 0 ·0 | 112 ·23 | 13 | 1 57 58 ·08 | 14 16 33 ·6 | 84 ·08 |
| 34 ·57 | 6 28 13 ·4 | 111 ·83 | 14 | 2 0 3 ·46 | 14 24 58 ·1 | 83 ·32 |
| 38 ·31 | 6 39 24 ·4 | 111 ·43 | 15 | 2 2 8 ·89 | 14 33 18 ·0 | 82 ·57 |
| 42 ·06 | 6 50 33 ·0 | 111 ·02 | 16 | 2 4 14 ·38 | 14 41 33 ·4 | 81 ·78 |
| 45 ·82 | 7 1 39 ·1 | 110 ·58 | 17 | 2 6 19 ·93 | 14 49 44 ·1 | 81 ·00 |
| 49 ·58 | 7 12 42 ·6 | 110 ·15 | 18 | 2 8 25 ·53 | 14 57 50 ·1 | 80 ·23 |
| 53 ·34 | 7 23 43 ·5 | 109 ·72 | 19 | 2 10 31 ·18 | 15 5 51 ·5 | 79 ·43 |
| 57 ·11 | 7 34 41 ·8 | 109 ·27 | 20 | 2 12 36 ·90 | 15 13 48 ·1 | 78 ·63 |
| 0 ·90 | 7 45 37 ·4 | 108 ·80 | 21 | 2 14 42 ·67 | 15 21 39 ·9 | 77 ·83 |
| 4 ·70 | 7 56 30 ·2 | 108 ·33 | 22 | 2 16 48 ·50 | 15 29 26 ·9 | 77 ·03 |
| 8 ·51 | N. 8 7 20 ·2 | 107 ·87 | 23 | 2 18 54 ·38 | N.15 37 9 ·1 | 76 ·22 |
| *SUNDAY* 6. | | | | *TUESDAY* 8. | | |
| 12 ·34 | N. 8 18 7 ·4 | 107 ·38 | 0 | 2 21 0 ·32 | N.15 44 46 ·4 | 75 ·40 |
| 16 ·19 | 8 28 51 ·7 | 106 ·88 | 1 | 2 23 6 ·31 | 15 52 18 ·8 | 74 ·58 |
| 20 ·06 | 8 39 33 ·0 | 106 ·38 | 2 | 2 25 12 ·36 | 15 59 46 ·3 | 73 ·75 |
| 23 ·95 | 8 50 11 ·3 | 105 ·88 | 3 | 2 27 18 ·47 | 16 7 8 ·8 | 72 ·92 |
| 27 ·86 | 9 0 46 ·6 | 105 ·37 | 4 | 2 29 24 ·63 | 16 14 26 ·3 | 72 ·08 |
| 31 ·80 | 9 11 18 ·8 | 104 ·83 | 5 | 2 31 30 ·84 | 16 21 38 ·8 | 71 ·23 |
| 35 ·76 | 9 21 47 ·8 | 104 ·30 | 6 | 2 33 37 ·11 | 16 28 46 ·2 | 70 ·40 |
| 39 ·75 | 9 32 13 ·6 | 103 ·77 | 7 | 2 35 43 ·44 | 16 35 48 ·6 | 69 ·53 |
| 43 ·77 | 9 42 36 ·2 | 103 ·20 | 8 | 2 37 49 ·82 | 16 42 45 ·8 | 68 ·68 |
| 47 ·82 | 9 52 55 ·4 | 102 ·65 | 9 | 2 39 56 ·25 | 16 49 37 ·9 | 67 ·82 |
| 51 ·89 | 10 3 11 ·3 | 102 ·10 | 10 | 2 42 2 ·74 | 16 56 24 ·8 | 66 ·95 |
| 56 ·00 | 10 13 23 ·9 | 101 ·52 | 11 | 2 44 9 ·28 | 17 3 6 ·5 | 66 ·08 |
| 0 ·15 | 10 23 33 ·0 | 100 ·93 | 12 | 2 46 15 ·87 | 17 9 43 ·0 | 65 ·20 |
| 4 ·33 | 10 33 38 ·6 | 100 ·35 | 13 | 2 48 22 ·51 | 17 16 14 ·2 | 64 ·33 |
| 8 ·55 | 10 43 40 ·7 | 99 ·75 | 14 | 2 50 29 ·21 | 17 22 40 ·2 | 63 ·45 |
| 12 ·81 | 10 53 39 ·2 | 99 ·15 | 15 | 2 52 35 ·95 | 17 29 0 ·9 | 62 ·55 |
| 17 ·11 | 11 3 34 ·1 | 98 ·53 | 16 | 2 54 42 ·75 | 17 35 16 ·2 | 61 ·67 |
| 21 ·44 | 11 13 25 ·3 | 97 ·92 | 17 | 2 56 49 ·59 | 17 41 26 ·2 | 60 ·77 |
| 25 ·82 | 11 23 12 ·8 | 97 ·28 | 18 | 2 58 56 ·48 | 17 47 30 ·8 | 59 ·87 |
| 30 ·24 | 11 32 56 ·5 | 96 ·67 | 19 | 3 1 3 ·42 | 17 53 30 ·0 | 58 ·97 |
| 34 ·71 | 11 42 36 ·5 | 96 ·02 | 20 | 3 3 10 ·40 | 17 59 23 ·8 | 58 ·05 |
| 39 ·22 | 11 52 12 ·6 | 95 ·37 | 21 | 3 5 17 ·43 | 18 5 12 ·1 | 57 ·15 |
| 43 ·77 | 12 1 44 ·8 | 94 ·72 | 22 | 3 7 24 ·50 | 18 10 55 ·0 | 56 ·23 |
| 48 ·37 | 12 11 13 ·1 | 94 ·05 | 23 | 3 9 31 ·62 | 18 16 32 ·4 | 55 ·30 |
| 53 ·02 | N.12 20 37 ·4 | | 24 | 3 11 38 ·78 | N.18 22 4 ·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 11 38 ·78 | N.18 22 4 ·2 | 54 ·38 |
| 1 | 3 13 45 ·98 | 18 27 30 ·5 | 53 ·47 |
| 2 | 3 15 53 ·23 | 18 32 51 ·3 | 52 ·53 |
| 3 | 3 18 0 ·51 | 18 38 6 ·5 | 51 ·60 |
| 4 | 3 20 7 ·83 | 18 43 16 ·1 | 50 ·67 |
| 5 | 3 22 15 ·19 | 18 48 20 ·1 | 49 ·73 |
| 6 | 3 24 22 ·58 | 18 53 18 ·5 | 48 ·78 |
| 7 | 3 26 30 ·01 | 18 58 11 ·2 | 47 ·85 |
| 8 | 3 28 37 ·47 | 19 2 58 ·3 | 46 ·90 |
| 9 | 3 30 44 ·97 | 19 7 39 ·7 | 45 ·95 |
| 10 | 3 32 52 ·49 | 19 12 15 ·4 | 45 ·00 |
| 11 | 3 35 0 ·05 | 19 16 45 ·4 | 44 ·03 |
| 12 | 3 37 7 ·64 | 19 21 9 ·6 | 43 ·08 |
| 13 | 3 39 15 ·26 | 19 25 28 ·1 | 42 ·13 |
| 14 | 3 41 22 ·90 | 19 29 40 ·9 | 41 ·15 |
| 15 | 3 43 30 ·57 | 19 33 47 ·8 | 40 ·20 |
| 16 | 3 45 38 ·26 | 19 37 49 ·0 | 39 ·25 |
| 17 | 3 47 45 ·97 | 19 41 44 ·5 | 38 ·25 |
| 18 | 3 49 53 ·71 | 19 45 34 ·0 | 37 ·30 |
| 19 | 3 52 1 ·46 | 19 49 17 ·8 | 36 ·33 |
| 20 | 3 54 9 ·23 | 19 52 55 ·8 | 35 ·35 |
| 21 | 3 56 17 ·02 | 19 56 27 ·9 | 34 ·37 |
| 22 | 3 58 24 ·83 | 19 59 54 ·1 | 33 ·40 |
| 23 | 4 0 32 ·64 | N.20 3 14 ·5 | 32 ·42 |
| | *THURSDAY* 10. | | |
| 0 | 4 2 40 ·47 | N.20 6 29 ·0 | 31 ·43 |
| 1 | 4 4 48 ·31 | 20 9 37 ·6 | 30 ·47 |
| 2 | 4 6 56 ·16 | 20 12 40 ·4 | 29 ·47 |
| 3 | 4 9 4 ·01 | 20 15 37 ·2 | 28 ·48 |
| 4 | 4 11 11 ·87 | 20 18 28 ·1 | 27 ·50 |
| 5 | 4 13 19 ·74 | 20 21 13 ·1 | 26 ·52 |
| 6 | 4 15 27 ·61 | 20 23 52 ·2 | 25 ·53 |
| 7 | 4 17 35 ·47 | 20 26 25 ·4 | 24 ·53 |
| 8 | 4 19 43 ·34 | 20 28 52 ·6 | 23 ·57 |
| 9 | 4 21 51 ·20 | 20 31 14 ·0 | 22 ·55 |
| 10 | 4 23 59 ·06 | 20 33 29 ·3 | 21 ·57 |
| 11 | 4 26 6 ·92 | 20 35 38 ·7 | 20 ·58 |
| 12 | 4 28 14 ·76 | 20 37 42 ·2 | 19 ·58 |
| 13 | 4 30 22 ·60 | 20 39 39 ·7 | 18 ·60 |
| 14 | 4 32 30 ·43 | 20 41 31 ·3 | 17 ·60 |
| 15 | 4 34 38 ·24 | 20 43 16 ·9 | 16 ·62 |
| 16 | 4 36 46 ·04 | 20 44 56 ·6 | 15 ·62 |
| 17 | 4 38 53 ·83 | 20 46 30 ·3 | 14 ·62 |
| 18 | 4 41 1 ·59 | 20 47 58 ·0 | 13 ·63 |
| 19 | 4 43 9 ·34 | 20 49 19 ·8 | 12 ·63 |
| 20 | 4 45 17 ·07 | 20 50 35 ·6 | 11 ·65 |
| 21 | 4 47 24 ·78 | 20 51 45 ·5 | 10 ·65 |
| 22 | 4 49 32 ·46 | 20 52 49 ·4 | 9 ·65 |
| 23 | 4 51 40 ·12 | 20 53 47 ·3 | 8 ·67 |
| 24 | 4 53 47 ·75 | N.20 54 39 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 53 47 ·75 | N.20 54 39 ·3 | 7 ·67 |
| 1 | 4 55 55 ·35 | 20 55 25 ·3 | 6 ·68 |
| 2 | 4 58 2 ·92 | 20 56 5 ·4 | 5 ·68 |
| 3 | 5 0 10 ·46 | 20 56 39 ·5 | 4 ·70 |
| 4 | 5 2 17 ·97 | 20 57 7 ·7 | 3 ·70 |
| 5 | 5 4 25 ·44 | 20 57 29 ·9 | 2 ·72 |
| 6 | 5 6 32 ·87 | 20 57 46 ·2 | 1 ·72 |
| 7 | 5 8 40 ·27 | 20 57 56 ·5 | 0 ·75 |
| 8 | 5 10 47 ·63 | 20 58 1 ·0 | 0 ·25 |
| 9 | 5 12 54 ·94 | 20 57 59 ·5 | 1 ·23 |
| 10 | 5 15 2 ·22 | 20 57 52 ·1 | 2 ·22 |
| 11 | 5 17 9 ·45 | 20 57 38 ·8 | 3 ·20 |
| 12 | 5 19 16 ·63 | 20 57 19 ·6 | 4 ·18 |
| 13 | 5 21 23 ·77 | 20 56 54 ·5 | 5 ·15 |
| 14 | 5 23 30 ·85 | 20 56 23 ·6 | 6 ·15 |
| 15 | 5 25 37 ·89 | 20 55 46 ·7 | 7 ·12 |
| 16 | 5 27 44 ·88 | 20 55 4 ·0 | 8 ·10 |
| 17 | 5 29 51 ·81 | 20 54 15 ·4 | 9 ·07 |
| 18 | 5 31 58 ·69 | 20 53 21 ·0 | 10 ·03 |
| 19 | 5 34 5 ·51 | 20 52 20 ·8 | 11 ·02 |
| 20 | 5 36 12 ·27 | 20 51 14 ·7 | 11 ·98 |
| 21 | 5 38 18 ·98 | 20 50 2 ·8 | 12 ·97 |
| 22 | 5 40 25 ·62 | 20 48 45 ·0 | 13 ·92 |
| 23 | 5 42 32 ·20 | N.20 47 21 ·5 | 14 ·88 |
| | *SATURDAY* 12. | | |
| 0 | 5 44 38 ·72 | N.20 45 52 ·2 | 15 ·85 |
| 1 | 5 46 45 ·18 | 20 44 17 ·1 | 16 ·82 |
| 2 | 5 48 51 ·57 | 20 42 36 ·2 | 17 ·77 |
| 3 | 5 50 57 ·90 | 20 40 49 ·6 | 18 ·73 |
| 4 | 5 53 4 ·16 | 20 38 57 ·2 | 19 ·67 |
| 5 | 5 55 10 ·35 | 20 36 59 ·2 | 20 ·63 |
| 6 | 5 57 16 ·47 | 20 34 55 ·4 | 21 ·60 |
| 7 | 5 59 22 ·52 | 20 32 45 ·8 | 22 ·52 |
| 8 | 6 1 28 ·50 | 20 30 30 ·7 | 23 ·48 |
| 9 | 6 3 34 ·40 | 20 28 9 ·8 | 24 ·42 |
| 10 | 6 5 40 ·23 | 20 25 43 ·3 | 25 ·37 |
| 11 | 6 7 45 ·99 | 20 23 11 ·1 | 26 ·30 |
| 12 | 6 9 51 ·67 | 20 20 33 ·3 | 27 ·23 |
| 13 | 6 11 57 ·28 | 20 17 49 ·9 | 28 ·17 |
| 14 | 6 14 2 ·81 | 20 15 0 ·9 | 29 ·10 |
| 15 | 6 16 8 ·26 | 20 12 6 ·3 | 30 ·02 |
| 16 | 6 18 13 ·63 | 20 9 6 ·2 | 30 ·95 |
| 17 | 6 20 18 ·92 | 20 6 0 ·5 | 31 ·88 |
| 18 | 6 22 24 ·14 | 20 2 49 ·2 | 32 ·78 |
| 19 | 6 24 29 ·27 | 19 59 32 ·5 | 33 ·70 |
| 20 | 6 26 34 ·33 | 19 56 10 ·3 | 34 ·63 |
| 21 | 6 28 39 ·30 | 19 52 42 ·5 | 35 ·53 |
| 22 | 6 30 44 ·19 | 19 49 9 ·3 | 36 ·43 |
| 23 | 6 32 49 ·00 | 19 45 30 ·7 | 37 ·35 |
| 24 | 6 34 53 ·72 | N.19 41 46 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SUNDAY* 13. | | | | *TUESDAY* 15. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 6 34 53 ·72 | N.19 41 46 ·6 | 38 ·25 | 0 | 8 13 1 ·78 | N.15 2 51 ·5 | 77 ·32 |
| 6 36 58 ·36 | 19 37 57 ·1 | 39 ·15 | 1 | 8 15 2 ·59 | 14 55 7 ·6 | 78 ·02 |
| 6 39 2 ·91 | 19 34 2 ·2 | 40 ·03 | 2 | 8 17 3 ·33 | 14 47 19 ·5 | 78 ·73 |
| 6 41 7 ·38 | 19 30 2 ·0 | 40 ·95 | 3 | 8 19 4 ·02 | 14 39 27 ·1 | 79 ·43 |
| 6 43 11 ·77 | 19 25 56 ·3 | 41 ·82 | 4 | 8 21 4 ·65 | 14 31 30 ·5 | 80 ·15 |
| 6 45 16 ·07 | 19 21 45 ·4 | 42 ·72 | 5 | 8 23 5 ·23 | 14 23 29 ·6 | 80 ·83 |
| 6 47 20 ·28 | 19 17 29 ·1 | 43 ·58 | 6 | 8 25 5 ·75 | 14 15 24 ·6 | 81 ·52 |
| 6 49 24 ·41 | 19 13 7 ·6 | 44 ·48 | 7 | 8 27 6 ·22 | 14 7 15 ·5 | 82 ·22 |
| 6 51 28 ·45 | 19 8 40 ·7 | 45 ·35 | 8 | 8 29 6 ·64 | 13 59 2 ·2 | 82 ·90 |
| 6 53 32 ·40 | 19 4 8 ·6 | 46 ·22 | 9 | 8 31 7 ·01 | 13 50 44 ·8 | 83 ·57 |
| 6 55 36 ·27 | 18 59 31 ·3 | 47 ·08 | 10 | 8 33 7 ·33 | 13 42 23 ·4 | 84 ·25 |
| 6 57 40 ·05 | 18 54 48 ·8 | 47 ·97 | 11 | 8 35 7 ·60 | 13 33 57 ·9 | 84 ·92 |
| 6 59 43 ·74 | 18 50 1 ·0 | 48 ·82 | 12 | 8 37 7 ·83 | 13 25 28 ·4 | 85 ·58 |
| 7 1 47 ·35 | 18 45 8 ·1 | 49 ·68 | 13 | 8 39 8 ·02 | 13 16 54 ·9 | 86 ·23 |
| 7 3 50 ·87 | 18 40 10 ·0 | 50 ·53 | 14 | 8 41 8 ·16 | 13 8 17 ·5 | 86 ·88 |
| 7 5 54 ·31 | 18 35 6 ·8 | 51 ·38 | 15 | 8 43 8 ·27 | 12 59 36 ·2 | 87 ·53 |
| 7 7 57 ·66 | 18 29 58 ·5 | 52 ·23 | 16 | 8 45 8 ·34 | 12 50 51 ·0 | 88 ·18 |
| 7 10 0 ·92 | 18 24 45 ·1 | 53 ·07 | 17 | 8 47 8 ·37 | 12 42 1 ·9 | 88 ·82 |
| 7 12 4 ·09 | 18 19 26 ·7 | 53 ·92 | 18 | 8 49 8 ·37 | 12 33 9 ·0 | 89 ·45 |
| 7 14 7 ·18 | 18 14 3 ·2 | 54 ·75 | 19 | 8 51 8 ·34 | 12 24 12 ·3 | 90 ·08 |
| 7 16 10 ·18 | 18 8 34 ·7 | 55 ·60 | 20 | 8 53 8 ·28 | 12 15 11 ·8 | 90 ·70 |
| 7 18 13 ·10 | 18 3 1 ·1 | 56 ·42 | 21 | 8 55 8 ·19 | 12 6 7 ·6 | 91 ·33 |
| 7 20 15 ·93 | 17 57 22 ·6 | 57 ·23 | 22 | 8 57 8 ·08 | 11 56 59 ·6 | 91 ·93 |
| 7 22 18 ·68 | N.17 51 39 ·2 | 58 ·07 | 23 | 8 59 7 ·94 | N.11 47 48 ·0 | 92 ·55 |
| *MONDAY* 14. | | | | *WEDNESDAY* 16. | | |
| 7 24 21 ·34 | N.17 45 50 ·8 | 58 ·88 | 0 | 9 1 7 ·78 | N.11 38 32 ·7 | 93 ·15 |
| 7 26 23 ·92 | 17 39 57 ·5 | 59 ·70 | 1 | 9 3 7 ·60 | 11 29 13 ·8 | 93 ·75 |
| 7 28 26 ·42 | 17 33 59 ·3 | 60 ·50 | 2 | 9 5 7 ·41 | 11 19 51 ·3 | 94 ·35 |
| 7 30 28 ·83 | 17 27 56 ·3 | 61 ·32 | 3 | 9 7 7 ·20 | 11 10 25 ·2 | 94 ·93 |
| 7 32 31 ·17 | 17 21 48 ·4 | 62 ·12 | 4 | 9 9 6 ·98 | 11 0 55 ·6 | 95 ·52 |
| 7 34 33 ·42 | 17 15 35 ·7 | 62 ·92 | 5 | 9 11 6 ·75 | 10 51 22 ·5 | 96 ·08 |
| 7 36 35 ·59 | 17 9 18 ·2 | 63 ·72 | 6 | 9 13 6 ·50 | 10 41 46 ·0 | 96 ·67 |
| 7 38 37 ·68 | 17 2 55 ·9 | 64 ·50 | 7 | 9 15 6 ·26 | 10 32 6 ·0 | 97 ·23 |
| 7 40 39 ·69 | 16 56 28 ·9 | 65 ·28 | 8 | 9 17 6 ·01 | 10 22 22 ·6 | 97 ·80 |
| 7 42 41 ·62 | 16 49 57 ·2 | 66 ·08 | 9 | 9 19 5 ·76 | 10 12 35 ·8 | 98 ·33 |
| 7 44 43 ·47 | 16 43 20 ·7 | 66 ·85 | 10 | 9 21 5 ·51 | 10 2 45 ·8 | 98 ·90 |
| 7 46 45 ·25 | 16 36 39 ·6 | 67 ·62 | 11 | 9 23 5 ·26 | 9 52 52 ·4 | 99 ·45 |
| 7 48 46 ·95 | 16 29 53 ·9 | 68 ·40 | 12 | 9 25 5 ·02 | 9 42 55 ·7 | 99 ·98 |
| 7 50 48 ·57 | 16 23 3 ·5 | 69 ·17 | 13 | 9 27 4 ·79 | 9 32 55 ·8 | 100 ·52 |
| 7 52 50 ·12 | 16 16 8 ·5 | 69 ·92 | 14 | 9 29 4 ·56 | 9 22 52 ·7 | 101 ·05 |
| 7 54 51 ·60 | 16 9 9 ·0 | 70 ·68 | 15 | 9 31 4 ·35 | 9 12 46 ·4 | 101 ·57 |
| 7 56 53 ·01 | 16 2 4 ·9 | 71 ·43 | 16 | 9 33 4 ·15 | 9 2 37 ·0 | 102 ·07 |
| 7 58 54 ·34 | 15 54 56 ·3 | 72 ·18 | 17 | 9 35 3 ·97 | 8 52 24 ·6 | 102 ·60 |
| 8 0 55 ·60 | 15 47 43 ·2 | 72 ·93 | 18 | 9 37 3 ·81 | 8 42 9 ·0 | 103 ·08 |
| 8 2 56 ·80 | 15 40 25 ·6 | 73 ·67 | 19 | 9 39 3 ·68 | 8 31 50 ·5 | 103 ·60 |
| 8 4 57 ·93 | 15 33 3 ·6 | 74 ·42 | 20 | 9 41 3 ·57 | 8 21 28 ·9 | 104 ·08 |
| 8 6 58 ·99 | 15 25 37 ·1 | 75 ·13 | 21 | 9 43 3 ·49 | 8 11 4 ·4 | 104 ·57 |
| 8 8 59 ·98 | 15 18 6 ·3 | 75 ·87 | 22 | 9 45 3 ·44 | 8 0 37 ·0 | 105 ·05 |
| 8 11 0 ·91 | 15 10 31 ·1 | 76 ·60 | 23 | 9 47 3 ·42 | 7 50 6 ·7 | 105 ·52 |
| 8 13 1 ·78 | N.15 2 51 ·5 | | 24 | 9 49 3 ·44 | N. 7 39 33 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 49 3·44 | N. 7 39 33·6 | 105·98 |
| 1 | 9 51 3·50 | 7 28 57·7 | 106·45 |
| 2 | 9 53 3·60 | 7 18 19·0 | 106·90 |
| 3 | 9 55 3·74 | 7 7 37·6 | 107·33 |
| 4 | 9 57 3·93 | 6 56 53·6 | 107·80 |
| 5 | 9 59 4·17 | 6 46 6·8 | 108·22 |
| 6 | 10 1 4·47 | 6 35 17·5 | 108·65 |
| 7 | 10 3 4·82 | 6 24 25·6 | 109·07 |
| 8 | 10 5 5·23 | 6 13 31·2 | 109·48 |
| 9 | 10 7 5·70 | 6 2 34·3 | 109·88 |
| 10 | 10 9 6·23 | 5 51 35·0 | 110·30 |
| 11 | 10 11 6·84 | 5 40 33·2 | 110·68 |
| 12 | 10 13 7·51 | 5 29 29·1 | 111·07 |
| 13 | 10 15 8·25 | 5 18 22·7 | 111·47 |
| 14 | 10 17 9·07 | 5 7 13·9 | 111·82 |
| 15 | 10 19 9·97 | 4 56 3·0 | 112·20 |
| 16 | 10 21 10·95 | 4 44 49·8 | 112·53 |
| 17 | 10 23 12·02 | 4 33 34·6 | 112·90 |
| 18 | 10 25 13·17 | 4 22 17·2 | 113·25 |
| 19 | 10 27 14·41 | 4 10 57·7 | 113·57 |
| 20 | 10 29 15·75 | 3 59 36·3 | 113·92 |
| 21 | 10 31 17·18 | 3 48 12·8 | 114·22 |
| 22 | 10 33 18·71 | 3 36 47·5 | 114·53 |
| 23 | 10 35 20·35 | N. 3 25 20·3 | 114·85 |
| | *FRIDAY* 18. | | |
| 0 | 10 37 22·09 | N. 3 13 51·2 | 115·13 |
| 1 | 10 39 23·94 | 3 2 20·4 | 115·43 |
| 2 | 10 41 25·90 | 2 50 47·8 | 115·70 |
| 3 | 10 43 27·97 | 2 39 13·6 | 115·98 |
| 4 | 10 45 30·17 | 2 27 37·7 | 116·23 |
| 5 | 10 47 32·48 | 2 16 0·3 | 116·50 |
| 6 | 10 49 34·92 | 2 4 21·3 | 116·73 |
| 7 | 10 51 37·48 | 1 52 40·9 | 116·98 |
| 8 | 10 53 40·18 | 1 40 59·0 | 117·22 |
| 9 | 10 55 43·01 | 1 29 15·7 | 117·43 |
| 10 | 10 57 45·97 | 1 17 31·1 | 117·63 |
| 11 | 10 59 49·08 | 1 5 45·3 | 117·85 |
| 12 | 11 1 52·33 | 0 53 58·2 | 118·03 |
| 13 | 11 3 55·72 | 0 42 10·0 | 118·23 |
| 14 | 11 5 59·26 | 0 30 20·6 | 118·40 |
| 15 | 11 8 2·96 | 0 18 30·2 | 118·57 |
| 16 | 11 10 6·81 | N. 0 6 38·8 | 118·72 |
| 17 | 11 12 10·82 | S. 0 5 13·5 | 118·87 |
| 18 | 11 14 14·99 | 0 17 6·7 | 119·02 |
| 19 | 11 16 19·32 | 0 29 0·8 | 119·13 |
| 20 | 11 18 23·83 | 0 40 55·6 | 119·25 |
| 21 | 11 20 28·50 | 0 52 51·1 | 119·37 |
| 22 | 11 22 33·35 | 1 4 47·3 | 119·47 |
| 23 | 11 24 38·38 | 1 16 44·1 | 119·55 |
| 24 | 11 26 43·59 | S. 1 28 41·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 26 43·59 | S. 1 28 41·4 | 119·63 |
| 1 | 11 28 48·98 | 1 40 39·2 | 119·70 |
| 2 | 11 30 54·56 | 1 52 37·4 | 119·75 |
| 3 | 11 33 0·33 | 2 4 35·9 | 119·80 |
| 4 | 11 35 6·29 | 2 16 34·7 | 119·85 |
| 5 | 11 37 12·45 | 2 28 33·8 | 119·87 |
| 6 | 11 39 18·80 | 2 40 33·0 | 119·87 |
| 7 | 11 41 25·36 | 2 52 32·2 | 119·88 |
| 8 | 11 43 32·13 | 3 4 31·5 | 119·88 |
| 9 | 11 45 39·10 | 3 16 30·8 | 119·87 |
| 10 | 11 47 46·28 | 3 28 30·0 | 119·83 |
| 11 | 11 49 53·68 | 3 40 29·0 | 119·78 |
| 12 | 11 52 1·29 | 3 52 27·7 | 119·73 |
| 13 | 11 54 9·12 | 4 4 26·1 | 119·68 |
| 14 | 11 56 17·18 | 4 16 24·2 | 119·60 |
| 15 | 11 58 25·46 | 4 28 21·8 | 119·50 |
| 16 | 12 0 33·97 | 4 40 18·8 | 119·42 |
| 17 | 12 2 42·72 | 4 52 15·3 | 119·30 |
| 18 | 12 4 51·70 | 5 4 11·1 | 119·18 |
| 19 | 12 7 0·91 | 5 16 6·2 | 119·05 |
| 20 | 12 9 10·36 | 5 28 0·5 | 118·88 |
| 21 | 12 11 20·06 | 5 39 53·8 | 118·73 |
| 22 | 12 13 30·01 | 5 51 46·2 | 118·57 |
| 23 | 12 15 40·20 | S. 6 3 37·6 | 118·38 |
| | *SUNDAY* 20. | | |
| 0 | 12 17 50·64 | S. 6 15 27·9 | 118·18 |
| 1 | 12 20 1·34 | 6 27 17·0 | 117·97 |
| 2 | 12 22 12·29 | 6 39 4·8 | 117·75 |
| 3 | 12 24 23·50 | 6 50 51·3 | 117·52 |
| 4 | 12 26 34·98 | 7 2 36·4 | 117·25 |
| 5 | 12 28 46·72 | 7 14 19·9 | 117·00 |
| 6 | 12 30 58·72 | 7 26 1·9 | 116·73 |
| 7 | 12 33 10·99 | 7 37 42·3 | 116·43 |
| 8 | 12 35 23·54 | 7 49 20·9 | 116·13 |
| 9 | 12 37 36·36 | 8 0 57·7 | 115·83 |
| 10 | 12 39 49·45 | 8 12 32·7 | 115·48 |
| 11 | 12 42 2·82 | 8 24 5·6 | 115·15 |
| 12 | 12 44 16·47 | 8 35 36·5 | 114·80 |
| 13 | 12 46 30·41 | 8 47 5·3 | 114·42 |
| 14 | 12 48 44·63 | 8 58 31·8 | 114·05 |
| 15 | 12 50 59·13 | 9 9 56·1 | 113·65 |
| 16 | 12 53 13·93 | 9 21 18·0 | 113·23 |
| 17 | 12 55 29·01 | 9 32 37·4 | 112·80 |
| 18 | 12 57 44·39 | 9 43 54·2 | 112·37 |
| 19 | 13 0 0·06 | 9 55 8·4 | 111·92 |
| 20 | 13 2 16·03 | 10 6 19·9 | 111·43 |
| 21 | 13 4 32·29 | 10 17 28·5 | 110·97 |
| 22 | 13 6 48·85 | 10 28 34·3 | 110·47 |
| 23 | 13 9 5·71 | 10 39 37·1 | 109·93 |
| 24 | 13 11 22·87 | S. 10 50 36·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 11 22 ·87 | S. 10 50 36 ·7 | 109 ·42 |
| 1 | 13 13 40 ·34 | 11 1 33 ·2 | 108 ·88 |
| 2 | 13 15 58 ·11 | 11 12 26 ·5 | 108 ·33 |
| 3 | 13 18 16 ·18 | 11 23 16 ·5 | 107 ·75 |
| 4 | 13 20 34 ·56 | 11 34 3 ·0 | 107 ·15 |
| 5 | 13 22 53 ·26 | 11 44 45 ·9 | 106 ·57 |
| 6 | 13 25 12 ·26 | 11 55 25 ·3 | 105 ·95 |
| 7 | 13 27 31 ·56 | 12 6 1 ·0 | 105 ·32 |
| 8 | 13 29 51 ·18 | 12 16 32 ·9 | 104 ·67 |
| 9 | 13 32 11 ·11 | 12 27 0 ·9 | 104 ·00 |
| 10 | 13 34 31 ·36 | 12 37 24 ·9 | 103 ·33 |
| 11 | 13 36 51 ·91 | 12 47 44 ·9 | 102 ·63 |
| 12 | 13 39 12 ·78 | 12 58 0 ·7 | 101 ·93 |
| 13 | 13 41 33 ·96 | 13 8 12 ·3 | 101 ·20 |
| 14 | 13 43 55 ·45 | 13 18 19 ·5 | 100 ·47 |
| 15 | 13 46 17 ·25 | 13 28 22 ·3 | 99 ·72 |
| 16 | 13 48 39 ·37 | 13 38 20 ·6 | 98 ·97 |
| 17 | 13 51 1 ·80 | 13 48 14 ·4 | 98 ·17 |
| 18 | 13 53 24 ·55 | 13 58 3 ·4 | 97 ·37 |
| 19 | 13 55 47 ·60 | 14 7 47 ·6 | 96 ·57 |
| 20 | 13 58 10 ·97 | 14 17 27 ·0 | 95 ·73 |
| 21 | 14 0 34 ·65 | 14 27 1 ·4 | 94 ·90 |
| 22 | 14 2 58 ·64 | 14 36 30 ·8 | 94 ·03 |
| 23 | 14 5 22 ·94 | S. 14 45 55 ·0 | 93 ·17 |
| | *TUESDAY* 22. | | |
| 0 | 14 7 47 ·55 | S. 14 55 14 ·0 | 92 ·28 |
| 1 | 14 10 12 ·47 | 15 4 27 ·7 | 91 ·38 |
| 2 | 14 12 37 ·70 | 15 13 36 ·0 | 90 ·47 |
| 3 | 14 15 3 ·23 | 15 22 38 ·8 | 89 ·55 |
| 4 | 14 17 29 ·07 | 15 31 36 ·1 | 88 ·60 |
| 5 | 14 19 55 ·22 | 15 40 27 ·7 | 87 ·63 |
| 6 | 14 22 21 ·66 | 15 49 13 ·5 | 86 ·67 |
| 7 | 14 24 48 ·40 | 15 57 53 ·5 | 85 ·67 |
| 8 | 14 27 15 ·45 | 16 6 27 ·5 | 84 ·68 |
| 9 | 14 29 42 ·78 | 16 14 55 ·6 | 83 ·65 |
| 10 | 14 32 10 ·42 | 16 23 17 ·5 | 82 ·63 |
| 11 | 14 34 38 ·34 | 16 31 33 ·3 | 81 ·58 |
| 12 | 14 37 6 ·55 | 16 39 42 ·8 | 80 ·53 |
| 13 | 14 39 35 ·06 | 16 47 46 ·0 | 79 ·45 |
| 14 | 14 42 3 ·84 | 16 55 42 ·7 | 78 ·37 |
| 15 | 14 44 32 ·91 | 17 3 32 ·9 | 77 ·27 |
| 16 | 14 47 2 ·26 | 17 11 16 ·5 | 76 ·15 |
| 17 | 14 49 31 ·89 | 17 18 53 ·4 | 75 ·03 |
| 18 | 14 52 1 ·79 | 17 26 23 ·6 | 73 ·88 |
| 19 | 14 54 31 ·96 | 17 33 46 ·9 | 72 ·73 |
| 20 | 14 57 2 ·39 | 17 41 3 ·3 | 71 ·57 |
| 21 | 14 59 33 ·09 | 17 48 12 ·7 | 70 ·40 |
| 22 | 15 2 4 ·05 | 17 55 15 ·1 | 69 ·22 |
| 23 | 15 4 35 ·26 | 18 2 10 ·4 | 68 ·00 |
| 24 | 15 7 6 ·73 | S. 18 8 58 ·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 7 6 ·73 | S. 18 8 58 ·4 | 66 ·78 |
| 1 | 15 9 38 ·45 | 18 15 39 ·1 | 65 ·57 |
| 2 | 15 12 10 ·41 | 18 22 12 ·5 | 64 ·32 |
| 3 | 15 14 42 ·61 | 18 28 38 ·4 | 63 ·07 |
| 4 | 15 17 15 ·04 | 18 34 56 ·8 | 61 ·82 |
| 5 | 15 19 47 ·71 | 18 41 7 ·7 | 60 ·53 |
| 6 | 15 22 20 ·60 | 18 47 10 ·9 | 59 ·25 |
| 7 | 15 24 53 ·71 | 18 53 6 ·4 | 57 ·97 |
| 8 | 15 27 27 ·04 | 18 58 54 ·2 | 56 ·65 |
| 9 | 15 30 0 ·59 | 19 4 34 ·1 | 55 ·33 |
| 10 | 15 32 34 ·34 | 19 10 6 ·1 | 54 ·02 |
| 11 | 15 35 8 ·29 | 19 15 30 ·2 | 52 ·68 |
| 12 | 15 37 42 ·43 | 19 20 46 ·3 | 51 ·33 |
| 13 | 15 40 16 ·77 | 19 25 54 ·3 | 49 ·98 |
| 14 | 15 42 51 ·30 | 19 30 54 ·2 | 48 ·62 |
| 15 | 15 45 26 ·00 | 19 35 45 ·9 | 47 ·25 |
| 16 | 15 48 0 ·88 | 19 40 29 ·4 | 45 ·87 |
| 17 | 15 50 35 ·93 | 19 45 4 ·6 | 44 ·47 |
| 18 | 15 53 11 ·14 | 19 49 31 ·4 | 43 ·08 |
| 19 | 15 55 46 ·51 | 19 53 49 ·9 | 41 ·68 |
| 20 | 15 58 22 ·03 | 19 58 0 ·0 | 40 ·25 |
| 21 | 16 0 57 ·69 | 20 2 1 ·5 | 38 ·85 |
| 22 | 16 3 33 ·50 | 20 5 54 ·6 | 37 ·42 |
| 23 | 16 6 9 ·43 | S. 20 9 39 ·1 | 36 ·00 |
| | *THURSDAY* 24. | | |
| 0 | 16 8 45 ·49 | S. 20 13 15 ·1 | 34 ·55 |
| 1 | 16 11 21 ·67 | 20 16 42 ·4 | 33 ·10 |
| 2 | 16 13 57 ·97 | 20 20 1 ·0 | 31 ·67 |
| 3 | 16 16 34 ·37 | 20 23 11 ·0 | 30 ·20 |
| 4 | 16 19 10 ·86 | 20 26 12 ·2 | 28 ·73 |
| 5 | 16 21 47 ·45 | 20 29 4 ·6 | 27 ·28 |
| 6 | 16 24 24 ·13 | 20 31 48 ·3 | 25 ·80 |
| 7 | 16 27 0 ·88 | 20 34 23 ·1 | 24 ·33 |
| 8 | 16 29 37 ·71 | 20 36 49 ·1 | 22 ·85 |
| 9 | 16 32 14 ·60 | 20 39 6 ·2 | 21 ·38 |
| 10 | 16 34 51 ·55 | 20 41 14 ·5 | 19 ·88 |
| 11 | 16 37 28 ·55 | 20 43 13 ·8 | 18 ·40 |
| 12 | 16 40 5 ·59 | 20 45 4 ·2 | 16 ·90 |
| 13 | 16 42 42 ·67 | 20 46 45 ·6 | 15 ·42 |
| 14 | 16 45 19 ·79 | 20 48 18 ·1 | 13 ·93 |
| 15 | 16 47 56 ·92 | 20 49 41 ·7 | 12 ·42 |
| 16 | 16 50 34 ·07 | 20 50 56 ·2 | 10 ·93 |
| 17 | 16 53 11 ·22 | 20 52 1 ·8 | 9 ·43 |
| 18 | 16 55 48 ·38 | 20 52 58 ·4 | 7 ·93 |
| 19 | 16 58 25 ·53 | 20 53 46 ·0 | 6 ·43 |
| 20 | 17 1 2 ·67 | 20 54 24 ·6 | 4 ·93 |
| 21 | 17 3 39 ·79 | 20 54 54 ·2 | 3 ·43 |
| 22 | 17 6 16 ·88 | 20 55 14 ·8 | 1 ·95 |
| 23 | 17 8 53 ·94 | 20 55 26 ·5 | 0 ·43 |
| 24 | 17 11 30 ·95 | S. 20 55 29 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 11 30 ·95 | S. 20 55 29 ·1 | 1 ·05 |
| 1 | 17 14 7 ·92 | 20 55 22 ·8 | 2 ·55 |
| 2 | 17 16 44 ·83 | 20 55 7 ·5 | 4 ·05 |
| 3 | 17 19 21 ·68 | 20 54 43 ·2 | 5 ·52 |
| 4 | 17 21 58 ·47 | 20 54 10 ·1 | 7 ·03 |
| 5 | 17 24 35 ·17 | 20 53 27 ·9 | 8 ·50 |
| 6 | 17 27 11 ·79 | 20 52 36 ·9 | 9 ·98 |
| 7 | 17 29 48 ·32 | 20 51 37 ·0 | 11 ·45 |
| 8 | 17 32 24 ·76 | 20 50 28 ·3 | 12 ·95 |
| 9 | 17 35 1 ·10 | 20 49 10 ·6 | 14 ·40 |
| 10 | 17 37 37 ·32 | 20 47 44 ·2 | 15 ·88 |
| 11 | 17 40 13 ·43 | 20 46 8 ·9 | 17 ·33 |
| 12 | 17 42 49 ·41 | 20 44 24 ·9 | 18 ·80 |
| 13 | 17 45 25 ·27 | 20 42 32 ·1 | 20 ·25 |
| 14 | 17 48 0 ·99 | 20 40 30 ·6 | 21 ·68 |
| 15 | 17 50 36 ·56 | 20 38 20 ·5 | 23 ·13 |
| 16 | 17 53 11 ·99 | 20 36 1 ·7 | 24 ·57 |
| 17 | 17 55 47 ·27 | 20 33 34 ·3 | 26 ·00 |
| 18 | 17 58 22 ·39 | 20 30 58 ·3 | 27 ·42 |
| 19 | 18 0 57 ·34 | 20 28 13 ·8 | 28 ·85 |
| 20 | 18 3 32 ·12 | 20 25 20 ·7 | 30 ·23 |
| 21 | 18 6 6 ·72 | 20 22 19 ·3 | 31 ·65 |
| 22 | 18 8 41 ·15 | 20 19 9 ·4 | 33 ·03 |
| 23 | 18 11 15 ·38 | S. 20 15 51 ·2 | 34 ·43 |
| | *SATURDAY* 26. | | |
| 0 | 18 13 49 ·42 | S. 20 12 24 ·6 | 35 ·80 |
| 1 | 18 16 23 ·26 | 20 8 49 ·8 | 37 ·18 |
| 2 | 18 18 56 ·90 | 20 5 6 ·7 | 38 ·53 |
| 3 | 18 21 30 ·32 | 20 1 15 ·5 | 39 ·88 |
| 4 | 18 24 3 ·54 | 19 57 16 ·2 | 41 ·23 |
| 5 | 18 26 36 ·53 | 19 53 8 ·8 | 42 ·58 |
| 6 | 18 29 9 ·31 | 19 48 53 ·3 | 43 ·88 |
| 7 | 18 31 41 ·85 | 19 44 30 ·0 | 45 ·22 |
| 8 | 18 34 14 ·17 | 19 39 58 ·7 | 46 ·52 |
| 9 | 18 36 46 ·25 | 19 35 19 ·6 | 47 ·83 |
| 10 | 18 39 18 ·08 | 19 30 32 ·6 | 49 ·10 |
| 11 | 18 41 49 ·67 | 19 25 38 ·0 | 50 ·38 |
| 12 | 18 44 21 ·02 | 19 20 35 ·7 | 51 ·65 |
| 13 | 18 46 52 ·11 | 19 15 25 ·8 | 52 ·92 |
| 14 | 18 49 22 ·94 | 19 10 8 ·3 | 54 ·15 |
| 15 | 18 51 53 ·51 | 19 4 43 ·4 | 55 ·38 |
| 16 | 18 54 23 ·83 | 18 59 11 ·1 | 56 ·62 |
| 17 | 18 56 53 ·87 | 18 53 31 ·4 | 57 ·83 |
| 18 | 18 59 23 ·64 | 18 47 44 ·4 | 59 ·03 |
| 19 | 19 1 53 ·15 | 18 41 50 ·2 | 60 ·23 |
| 20 | 19 4 22 ·37 | 18 35 48 ·8 | 61 ·40 |
| 21 | 19 6 51 ·32 | 18 29 40 ·4 | 62 ·58 |
| 22 | 19 9 19 ·99 | 18 23 24 ·9 | 63 ·73 |
| 23 | 19 11 48 ·38 | 18 17 2 ·5 | 64 ·88 |
| 24 | 19 14 16 ·48 | S. 18 10 33 ·2 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SUNDAY* 27. | |
| | h m s | ° ′ ″ |
| 0 | 19 14 16 ·48 | S. 18 10 33 ·2 |
| 1 | 19 16 44 ·29 | 18 3 57 ·1 |
| 2 | 19 19 11 ·81 | 17 57 14 ·3 |
| 3 | 19 21 39 ·04 | 17 50 24 ·8 |
| 4 | 19 24 5 ·98 | 17 43 28 ·7 |
| 5 | 19 26 32 ·62 | 17 36 26 ·1 |
| 6 | 19 28 58 ·97 | 17 29 17 ·1 |
| 7 | 19 31 25 ·01 | 17 22 1 ·7 |
| 8 | 19 33 50 ·76 | 17 14 40 ·0 |
| 9 | 19 36 16 ·20 | 17 7 12 ·0 |
| 10 | 19 38 41 ·34 | 16 59 38 ·0 |
| 11 | 19 41 6 ·18 | 16 51 57 ·8 |
| 12 | 19 43 30 ·71 | 16 44 11 ·6 |
| 13 | 19 45 54 ·94 | 16 36 19 ·5 |
| 14 | 19 48 18 ·86 | 16 28 21 ·6 |
| 15 | 19 50 42 ·48 | 16 20 17 ·9 |
| 16 | 19 53 5 ·79 | 16 12 8 ·4 |
| 17 | 19 55 28 ·80 | 16 3 53 ·4 |
| 18 | 19 57 51 ·50 | 15 55 32 ·8 |
| 19 | 20 0 13 ·89 | 15 47 6 ·8 |
| 20 | 20 2 35 ·97 | 15 38 35 ·4 |
| 21 | 20 4 57 ·75 | 15 29 58 ·6 |
| 22 | 20 7 19 ·22 | 15 21 16 ·7 |
| 23 | 20 9 40 ·38 | S. 15 12 29 ·5 |
| | *MONDAY* 28. | |
| 0 | 20 12 1 ·24 | S. 15 3 37 ·3 |
| 1 | 20 14 21 ·79 | 14 54 40 ·1 |
| 2 | 20 16 42 ·04 | 14 45 37 ·9 |
| 3 | 20 19 1 ·99 | 14 36 30 ·9 |
| 4 | 20 21 21 ·63 | 14 27 19 ·2 |
| 5 | 20 23 40 ·97 | 14 18 2 ·7 |
| 6 | 20 26 0 ·01 | 14 8 41 ·6 |
| 7 | 20 28 18 ·75 | 13 59 16 ·0 |
| 8 | 20 30 37 ·19 | 13 49 45 ·9 |
| 9 | 20 32 55 ·33 | 13 40 11 ·4 |
| 10 | 20 35 13 ·17 | 13 30 32 ·7 |
| 11 | 20 37 30 ·72 | 13 20 49 ·6 |
| 12 | 20 39 47 ·98 | 13 11 2 ·4 |
| 13 | 20 42 4 ·94 | 13 1 11 ·1 |
| 14 | 20 44 21 ·62 | 12 51 15 ·8 |
| 15 | 20 46 38 ·01 | 12 41 16 ·6 |
| 16 | 20 48 54 ·10 | 12 31 13 ·5 |
| 17 | 20 51 9 ·92 | 12 21 6 ·7 |
| 18 | 20 53 25 ·45 | 12 10 56 ·1 |
| 19 | 20 55 40 ·70 | 12 0 41 ·9 |
| 20 | 20 57 55 ·67 | 11 50 24 ·1 |
| 21 | 21 0 10 ·36 | 11 40 2 ·8 |
| 22 | 21 2 24 ·78 | 11 29 38 ·2 |
| 23 | 21 4 38 ·92 | 11 19 10 ·1 |
| 24 | 21 6 52 ·80 | S. 11 8 38 ·8 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|---|
| | *TUESDAY* 29. | | | | *WEDNESDAY* 30. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 0 | 21 6 52 ·80 | S. 11 8 38 ·8 | 105 ·75 | 0 | 21 59 11 ·51 | S. 6 42 51 ·7 | 115 ·03 |
| 1 | 21 9 6 ·41 | 10 58 4 ·3 | 106 ·27 | 1 | 22 1 19 ·50 | 6 31 21 ·5 | 115 ·27 |
| 2 | 21 11 19 ·75 | 10 47 26 ·7 | 106 ·78 | 2 | 22 3 27 ·29 | 6 19 49 ·9 | 115 ·52 |
| 3 | 21 13 32 ·83 | 10 36 46 ·0 | 107 ·27 | 3 | 22 5 34 ·89 | 6 8 16 ·8 | 115 ·73 |
| 4 | 21 15 45 ·65 | 10 26 2 ·4 | 107 ·77 | 4 | 22 7 42 ·30 | 5 56 42 ·4 | 115 ·95 |
| 5 | 21 17 58 ·22 | 10 15 15 ·8 | 108 ·23 | 5 | 22 9 49 ·52 | 5 45 6 ·7 | 116 ·15 |
| 6 | 21 20 10 ·52 | 10 4 26 ·4 | 108 ·70 | 6 | 22 11 56 ·55 | 5 33 29 ·8 | 116 ·35 |
| 7 | 21 22 22 ·58 | 9 53 34 ·2 | 109 ·13 | 7 | 22 14 3 ·41 | 5 21 51 ·7 | 116 ·53 |
| 8 | 21 24 34 ·38 | 9 42 39 ·4 | 109 ·58 | 8 | 22 16 10 ·09 | 5 10 12 ·5 | 116 ·70 |
| 9 | 21 26 45 ·94 | 9 31 41 ·9 | 110 ·02 | 9 | 22 18 16 ·59 | 4 58 32 ·3 | 116 ·85 |
| 10 | 21 28 57 ·25 | 9 20 41 ·8 | 110 ·42 | 10 | 22 20 22 ·92 | 4 46 51 ·2 | 117 ·02 |
| 11 | 21 31 8 ·31 | 9 9 39 ·3 | 110 ·82 | 11 | 22 22 29 ·09 | 4 35 9 ·1 | 117 ·15 |
| 12 | 21 33 19 ·14 | 8 58 34 ·4 | 111 ·22 | 12 | 22 24 35 ·09 | 4 23 26 ·2 | 117 ·28 |
| 13 | 21 35 29 ·73 | 8 47 27 ·1 | 111 ·58 | 13 | 22 26 40 ·93 | 4 11 42 ·5 | 117 ·40 |
| 14 | 21 37 40 ·10 | 8 36 17 ·6 | 111 ·97 | 14 | 22 28 46 ·62 | 3 59 58 ·1 | 117 ·50 |
| 15 | 21 39 50 ·23 | 8 25 5 ·8 | 112 ·32 | 15 | 22 30 52 ·15 | 3 48 13 ·1 | 117 ·60 |
| 16 | 21 42 0 ·13 | 8 13 51 ·9 | 112 ·65 | 16 | 22 32 57 ·53 | 3 36 27 ·5 | 117 ·70 |
| 17 | 21 44 9 ·81 | 8 2 36 ·0 | 113 ·00 | 17 | 22 35 2 ·76 | 3 24 41 ·3 | 117 ·78 |
| 18 | 21 46 19 ·26 | 7 51 18 ·0 | 113 ·32 | 18 | 22 37 7 ·84 | 3 12 54 ·6 | 117 ·85 |
| 19 | 21 48 28 ·50 | 7 39 58 ·1 | 113 ·63 | 19 | 22 39 12 ·79 | 3 1 7 ·5 | 117 ·90 |
| 20 | 21 50 37 ·52 | 7 28 36 ·3 | 113 ·93 | 20 | 22 41 17 ·59 | 2 49 20 ·1 | 117 ·97 |
| 21 | 21 52 46 ·33 | 7 17 12 ·7 | 114 ·23 | 21 | 22 43 22 ·26 | 2 37 32 ·3 | 118 ·00 |
| 22 | 21 54 54 ·93 | 7 5 47 ·3 | 114 ·50 | 22 | 22 45 26 ·80 | 2 25 44 ·3 | 118 ·03 |
| 23 | 21 57 3 ·32 | 6 54 20 ·3 | 114 ·77 | 23 | 22 47 31 ·21 | 2 13 56 ·1 | 118 ·05 |
| 24 | 21 59 11 ·51 | S. 6 42 51 ·7 | | 24 | 22 49 35 ·49 | S. 2 2 7 ·8 | |

### PHASES OF THE MOON.

| | d | h | m |
|---|---|---|---|
| ● New Moon | 6 | 7 | 40 ·4 |
| ☽ *First Quarter* | 14 | 9 | 23 ·4 |
| ○ Full Moon | 21 | 19 | 12 ·2 |
| ☾ *Last Quarter* | 28 | 11 | 19 ·8 |

| | d | h |
|---|---|---|
| ☾ Apogee | 12 | 8 |
| ☾ Perigee | 24 | 5 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | Spica ♍ | W. | 103 27 8 | 2369 | 105 11 27 | 2375 | 106 55 38 | 2380 | 108 39 41 |
| | Antares | W. | 58 6 22 | 2396 | 59 50 2 | 2400 | 61 33 36 | 2405 | 63 17 4 |
| | Mars | W. | 21 5 17 | 2655 | 22 42 58 | 2647 | 24 20 49 | 2643 | 25 58 45 |
| | Fomalhaut | E. | 36 48 1 | 4153 | 35 38 50 | 4320 | 34 32 16 | 4512 | 33 28 35 |
| | Sun | E. | 66 41 15 | 2699 | 65 4 33 | 2704 | 63 27 58 | 2710 | 61 51 31 |
| 2 | Antares | W. | 71 52 36 | 2436 | 73 35 20 | 2442 | 75 17 55 | 2447 | 77 0 23 |
| | Mars | W. | 34 8 34 | 2648 | 35 46 24 | 2651 | 37 24 10 | 2655 | 39 1 51 |
| | Sun | E. | 53 51 20 | 2747 | 52 15 43 | 2755 | 50 40 16 | 2763 | 49 4 59 |
| 3 | Antares | W. | 85 30 29 | 2485 | 87 12 3 | 2493 | 88 53 26 | 2500 | 90 34 40 |
| | Mars | W. | 47 8 36 | 2687 | 48 45 34 | 2692 | 50 22 25 | 2699 | 51 59 6 |
| | Sun | E. | 41 11 0 | 2809 | 39 36 44 | 2818 | 38 2 39 | 2827 | 36 28 46 |
| 4 | Antares | W. | 98 58 10 | 2546 | 100 38 19 | 2555 | 102 18 16 | 2563 | 103 58 2 |
| | Mars | W. | 60 0 12 | 2742 | 61 35 56 | 2751 | 63 11 28 | 2759 | 64 46 50 |
| 8 | Pollux | E. | 72 51 23 | 2927 | 71 19 38 | 2939 | 69 48 8 | 2951 | 68 16 54 |
| | Regulus | E. | 109 30 13 | 2863 | 107 57 6 | 2874 | 106 24 13 | 2883 | 104 51 32 |
| 9 | Sun | W. | 31 0 21 | 3307 | 32 24 25 | 3314 | 33 48 20 | 3323 | 35 12 5 |
| | Pollux | E. | 60 44 35 | 3026 | 59 14 54 | 3039 | 57 45 29 | 3052 | 56 16 20 |
| | Regulus | E. | 97 11 12 | 2941 | 95 39 45 | 2950 | 94 8 29 | 2959 | 92 37 25 |
| 10 | Sun | W. | 42 8 30 | 3371 | 43 31 20 | 3378 | 44 54 2 | 3386 | 46 16 35 |
| | Pollux | E. | 48 54 41 | 3134 | 47 27 12 | 3148 | 46 0 1 | 3163 | 44 33 8 |
| | Regulus | E. | 85 4 47 | 3010 | 83 34 46 | 3018 | 82 4 55 | 3025 | 80 35 13 |
| 11 | Sun | W. | 53 7 32 | 3422 | 54 29 24 | 3427 | 55 51 10 | 3431 | 57 12 51 |
| | Pollux | E. | 37 23 45 | 3271 | 35 58 59 | 3294 | 34 34 40 | 3317 | 33 10 48 |
| | Regulus | E. | 73 8 49 | 3063 | 71 39 54 | 3069 | 70 11 7 | 3074 | 68 42 25 |
| 12 | Sun | W. | 64 0 15 | 3450 | 65 21 35 | 3452 | 66 42 53 | 3453 | 68 4 10 |
| | Aldebaran | W. | 18 56 40 | 3185 | 20 23 7 | 3171 | 21 49 51 | 3161 | 23 16 47 |
| | Pollux | E. | 26 20 16 | 3532 | 25 0 27 | 3588 | 23 41 39 | 3654 | 22 24 3 |
| | Regulus | E. | 61 20 14 | 3096 | 59 52 0 | 3099 | 58 23 49 | 3101 | 56 55 41 |
| | Spica ♍ | E. | 115 8 3 | 3069 | 113 39 16 | 3071 | 112 10 31 | 3072 | 110 41 47 |
| 13 | Sun | W. | 74 50 34 | 3449 | 76 11 55 | 3447 | 77 33 18 | 3444 | 78 54 45 |
| | Aldebaran | W. | 30 33 53 | 3118 | 32 1 41 | 3112 | 33 29 36 | 3106 | 34 57 38 |
| | Regulus | E. | 49 35 27 | 3107 | 48 7 26 | 3107 | 46 39 25 | 3107 | 45 11 24 |
| | Spica ♍ | E. | 103 18 11 | 3070 | 101 49 25 | 3068 | 100 20 36 | 3066 | 98 51 45 |
| 14 | Sun | W. | 85 43 4 | 3416 | 87 5 2 | 3410 | 88 27 7 | 3403 | 89 49 20 |
| | Aldebaran | W. | 42 19 40 | 3068 | 43 48 29 | 3061 | 45 17 26 | 3053 | 46 46 33 |
| | Regulus | E. | 37 50 59 | 3100 | 36 22 49 | 3098 | 34 54 37 | 3097 | 33 26 24 |
| | Spica ♍ | E. | 91 26 21 | 3041 | 89 56 59 | 3035 | 88 27 30 | 3029 | 86 57 53 |
| 15 | Sun | W. | 96 42 42 | 3352 | 98 5 54 | 3341 | 99 29 18 | 3330 | 100 52 55 |
| | Aldebaran | W. | 54 14 43 | 3000 | 55 44 56 | 2990 | 57 15 21 | 2980 | 58 45 59 |
| | Pollux | W. | 15 52 44 | 4283 | 16 59 52 | 4065 | 18 10 28 | 3891 | 19 23 57 |
| | Regulus | E. | 26 5 10 | 3101 | 24 37 2 | 3105 | 23 8 59 | 3113 | 21 41 5 |
| | Spica ♍ | E. | 79 27 32 | 2981 | 77 56 56 | 2972 | 76 26 8 | 2962 | 74 55 8 |
| | Antares | E. | 124 46 30 | 3011 | 123 16 31 | 3000 | 121 46 18 | 2990 | 120 15 53 |
| 16 | Sun | W. | 107 54 27 | 3255 | 109 19 31 | 3241 | 110 44 52 | 3227 | 112 10 29 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ica ny | W. | 110 23 37 | 2391 | 112 7 24 | 2396 | 113 51 4 | 2402 | 115 34 35 | 2408 |
| tares | W. | 65 0 24 | 2415 | 66 43 38 | 2419 | 68 26 45 | 2425 | 70 9 44 | 2430 |
| rs | W. | 27 36 43 | 2641 | 29 14 43 | 2641 | 30 52 42 | 2643 | 32 30 39 | 2644 |
| malhaut | E. | 32 28 1 | 4984 | 31 30 53 | 5277 | 30 37 29 | 5617 | 29 48 6 | 6021 |
| N | E. | 60 15 12 | 2722 | 58 39 1 | 2728 | 57 2 58 | 2735 | 55 27 5 | 2741 |
| tares | W. | 78 42 42 | 2460 | 80 24 52 | 2465 | 82 6 54 | 2472 | 83 48 46 | 2479 |
| rs | W. | 40 39 25 | 2663 | 42 16 54 | 2669 | 43 54 15 | 2675 | 45 31 29 | 2680 |
| N | E. | 47 29 51 | 2777 | 45 54 53 | 2785 | 44 20 5 | 2792 | 42 45 27 | 2801 |
| tares | W. | 92 15 43 | 2515 | 93 56 36 | 2522 | 95 37 19 | 2530 | 97 17 50 | 2538 |
| rs | W. | 53 35 39 | 2713 | 55 12 2 | 2720 | 56 48 15 | 2727 | 58 24 19 | 2735 |
| N | E. | 34 55 5 | 2846 | 33 21 37 | 2856 | 31 48 21 | 2866 | 30 15 19 | 2877 |
| tares | W. | 105 37 35 | 2580 | 107 16 57 | 2590 | 108 56 5 | 2599 | 110 35 1 | 2609 |
| rs | W. | 66 22 0 | 2776 | 67 56 59 | 2785 | 69 31 47 | 2794 | 71 6 23 | 2803 |
| llux | E. | 66 45 55 | 2976 | 65 15 12 | 2988 | 63 44 44 | 3000 | 62 14 31 | 3013 |
| gulus | E. | 103 19 3 | 2902 | 101 46 47 | 2912 | 100 14 43 | 2922 | 98 42 52 | 2931 |
| N | W. | 36 35 41 | 3339 | 37 59 7 | 3347 | 39 22 24 | 3356 | 40 45 31 | 3363 |
| llux | E. | 54 47 27 | 3078 | 53 18 51 | 3091 | 51 50 30 | 3105 | 50 22 27 | 3119 |
| gulus | E. | 91 6 32 | 2977 | 89 35 50 | 2985 | 88 5 19 | 2993 | 86 34 58 | 3002 |
| N | W. | 47 39 1 | 3399 | 49 1 19 | 3405 | 50 23 30 | 3411 | 51 45 34 | 3416 |
| llux | E. | 43 6 35 | 3196 | 41 40 21 | 3213 | 40 14 27 | 3231 | 38 48 54 | 3251 |
| gulus | E. | 79 5 40 | 3039 | 77 36 16 | 3045 | 76 6 59 | 3052 | 74 37 50 | 3058 |
| N | W. | 58 34 27 | 3439 | 59 56 0 | 3443 | 61 17 28 | 3446 | 62 38 53 | 3448 |
| llux | E. | 31 47 27 | 3372 | 30 24 39 | 3405 | 29 2 28 | 3441 | 27 40 58 | 3484 |
| gulus | E. | 67 13 49 | 3082 | 65 45 18 | 3087 | 64 16 52 | 3091 | 62 48 31 | 3094 |
| N | W. | 69 25 26 | 3454 | 70 46 42 | 3454 | 72 7 58 | 3452 | 73 29 16 | 3452 |
| debaran | W. | 24 43 55 | 3143 | 26 11 12 | 3136 | 27 38 38 | 3130 | 29 6 11 | 3123 |
| llux | E. | 21 7 51 | 3828 | 19 53 18 | 3945 | 18 40 44 | 4089 | 17 30 32 | 4272 |
| gulus | E. | 55 27 36 | 3105 | 53 59 32 | 3106 | 52 31 30 | 3106 | 51 3 28 | 3107 |
| ica ny | E. | 109 13 4 | 3074 | 107 44 22 | 3073 | 106 15 39 | 3073 | 104 46 56 | 3071 |
| N | W. | 80 16 15 | 3438 | 81 37 49 | 3432 | 82 59 29 | 3429 | 84 21 13 | 3423 |
| debaran | W. | 36 25 48 | 3094 | 37 54 4 | 3087 | 39 22 29 | 3082 | 40 51 0 | 3075 |
| gulus | E. | 43 43 21 | 3105 | 42 15 18 | 3104 | 40 47 13 | 3103 | 39 19 7 | 3101 |
| ica ny | E. | 97 22 50 | 3059 | 95 53 50 | 3056 | 94 24 46 | 3052 | 92 55 37 | 3046 |
| N | W. | 91 11 41 | 3388 | 92 34 11 | 3379 | 93 56 51 | 3371 | 95 19 41 | 3361 |
| debaran | W. | 48 15 50 | 3038 | 49 45 16 | 3028 | 51 14 54 | 3019 | 52 44 43 | 3010 |
| gulus | E. | 31 58 9 | 3096 | 30 29 54 | 3095 | 29 1 38 | 3096 | 27 33 23 | 3097 |
| ica ny | E. | 85 28 8 | 3015 | 83 58 14 | 3007 | 82 28 10 | 3000 | 80 57 57 | 2990 |
| N | W. | 102 16 46 | 3307 | 103 40 50 | 3295 | 105 5 7 | 3282 | 106 29 40 | 3270 |
| debaran | W. | 60 16 51 | 2957 | 61 47 58 | 2946 | 63 19 19 | 2934 | 64 50 55 | 2921 |
| llux | W. | 20 39 52 | 3633 | 21 57 51 | 3536 | 23 17 35 | 3454 | 24 38 51 | 3382 |
| gulus | E. | 20 13 26 | 3141 | 18 46 6 | 3163 | 17 19 13 | 3196 | 15 53 0 | 3242 |
| ica ny | E. | 73 23 55 | 2941 | 71 52 28 | 2930 | 70 20 47 | 2918 | 68 48 51 | 2906 |
| tares | E. | 118 45 13 | 2967 | 117 14 19 | 2954 | 115 43 9 | 2943 | 114 11 45 | 2930 |
| N | W. | 113 36 23 | 3198 | 115 2 35 | 3182 | 116 29 6 | 3167 | 117 55 55 | 3151 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 16 | Aldebaran | W. | 66 22 47 | 2908 | 67 54 56 | 2895 | 69 27 21 | 2882 | 71 0 |
| | Pollux | W. | 26 1 28 | 3319 | 27 25 17 | 3265 | 28 50 9 | 3215 | 30 16 |
| | Spica ♍ | E. | 67 16 40 | 2894 | 65 44 14 | 2881 | 64 11 31 | 2868 | 62 38 |
| | Antares | E. | 112 40 4 | 2917 | 111 8 7 | 2904 | 109 35 53 | 2891 | 108 3 |
| 17 | Sun | W. | 119 23 3 | 3134 | 120 50 31 | 3118 | 122 18 19 | 3102 | 123 46 |
| | Aldebaran | W. | 78 48 7 | 2795 | 80 22 41 | 2779 | 81 57 36 | 2764 | 83 32 |
| | Pollux | W. | 37 37 14 | 2996 | 39 7 32 | 2966 | 40 38 28 | 2938 | 42 9 |
| | Spica ♍ | E. | 54 49 2 | 2782 | 53 14 11 | 2767 | 51 39 0 | 2752 | 50 3 |
| | Antares | E. | 100 16 11 | 2803 | 98 41 47 | 2787 | 97 7 2 | 2772 | 95 31 |
| 18 | Sun | W. | 131 12 22 | 2998 | 132 42 38 | 2979 | 134 13 17 | 2962 | 135 44 |
| | Aldebaran | W. | 91 34 25 | 2667 | 93 11 49 | 2651 | 94 49 35 | 2633 | 96 27 |
| | Pollux | W. | 49 55 45 | 2789 | 51 30 27 | 2766 | 53 5 39 | 2744 | 54 41 |
| | Regulus | W. | 13 13 3 | 3056 | 14 42 6 | 2961 | 16 13 8 | 2887 | 17 45 |
| | Spica ♍ | E. | 42 0 37 | 2655 | 40 22 57 | 2639 | 38 44 55 | 2622 | 37 6 |
| | Antares | E. | 87 31 16 | 2675 | 85 54 3 | 2658 | 84 16 27 | 2642 | 82 38 |
| 19 | Aldebaran | W. | 104 44 12 | 2534 | 106 24 38 | 2517 | 108 5 27 | 2501 | 109 46 |
| | Pollux | W. | 62 46 48 | 2620 | 64 25 16 | 2601 | 66 4 10 | 2582 | 67 43 |
| | Regulus | W. | 25 44 56 | 2629 | 27 23 11 | 2602 | 29 2 4 | 2575 | 30 41 |
| | Spica ♍ | E. | 28 48 45 | 2522 | 27 8 3 | 2506 | 25 26 58 | 2490 | 23 45 |
| | Antares | E. | 74 22 59 | 2543 | 72 42 45 | 2526 | 71 2 8 | 2510 | 69 21 |
| | Mars | E. | 122 9 20 | 2740 | 120 33 33 | 2723 | 118 57 23 | 2704 | 117 20 |
| | α Aquilæ | E. | 123 57 27 | 3138 | 122 30 3 | 3098 | 121 1 51 | 3061 | 119 32 |
| 20 | Pollux | W. | 76 6 28 | 2475 | 77 48 16 | 2459 | 79 30 27 | 2443 | 81 13 |
| | Regulus | W. | 39 7 4 | 2443 | 40 49 37 | 2425 | 42 32 36 | 2407 | 44 16 |
| | Antares | E. | 60 50 47 | 2419 | 59 7 39 | 2405 | 57 24 11 | 2391 | 55 40 |
| | Mars | E. | 109 12 1 | 2601 | 107 33 7 | 2585 | 105 53 51 | 2568 | 104 14 |
| | α Aquilæ | E. | 111 57 47 | 2873 | 110 24 54 | 2847 | 108 51 27 | 2823 | 107 17 |
| 21 | Pollux | W. | 89 51 0 | 2358 | 91 35 35 | 2346 | 93 20 27 | 2335 | 95 5 |
| | Regulus | W. | 52 59 5 | 2311 | 54 44 48 | 2298 | 56 30 51 | 2284 | 58 17 |
| | Antares | E. | 46 56 50 | 2319 | 45 11 18 | 2309 | 43 25 31 | 2300 | 41 39 |
| | Mars | E. | 95 50 49 | 2481 | 94 9 9 | 2468 | 92 27 12 | 2455 | 90 44 |
| | α Aquilæ | E. | 99 20 31 | 2702 | 97 43 53 | 2685 | 96 6 53 | 2671 | 94 29 |
| | Saturn | E. | 117 8 6 | 2326 | 115 22 45 | 2313 | 113 37 5 | 2300 | 111 51 |
| 22 | Pollux | W. | 103 55 3 | 2278 | 105 41 35 | 2272 | 107 28 16 | 2265 | 109 15 |
| | Regulus | W. | 67 13 28 | 2218 | 69 1 29 | 2208 | 70 49 44 | 2200 | 72 38 |
| | Spica ♍ | W. | 13 10 52 | 2202 | 14 59 17 | 2191 | 16 47 58 | 2182 | 18 36 |
| | Antares | E. | 32 47 5 | 2268 | 31 0 19 | 2268 | 29 13 33 | 2270 | 27 26 |
| | Mars | E. | 82 9 42 | 2392 | 80 25 56 | 2384 | 78 41 59 | 2376 | 76 57 |
| | α Aquilæ | E. | 86 18 54 | 2608 | 84 40 10 | 2602 | 83 1 17 | 2596 | 81 22 |
| | Saturn | E. | 102 56 56 | 2235 | 101 9 21 | 2226 | 99 21 32 | 2218 | 97 33 |
| | Fomalhaut | E. | 114 7 13 | 2769 | 112 32 4 | 2747 | 110 56 26 | 2724 | 109 20 |
| 23 | Regulus | W. | 81 43 10 | 2163 | 83 32 34 | 2157 | 85 22 6 | 2154 | 87 11 |
| | Spica ♍ | W. | 27 44 16 | 2143 | 29 34 10 | 2138 | 31 24 11 | 2134 | 33 14 |
| | Mars | E. | 68 14 45 | 2342 | 66 29 46 | 2339 | 64 44 43 | 2336 | 62 59 |
| | α Aquilæ | E. | 73 6 51 | 2599 | 71 27 55 | 2605 | 69 49 7 | 2612 | 68 10 |
| | Saturn | E. | 88 30 53 | 2181 | 86 41 57 | 2177 | 84 52 55 | 2174 | 83 3 |

## ECLIPSES OF THE SATELLITES OF JUPITER.

THE ECLIPSES OF THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the SUN.

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the SUN.

## MEAN TIME.

### LUNAR DISTANCES.

| tar's Name and Position. | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|
| | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| nalhaut E. | 94 40 18 | 2606 | 93 1 31 | 2603 | 91 22 40 | 2601 | 89 43 46 | 2600 |
| 'egasi E. | 113 6 15 | 2296 | 111 20 9 | 2290 | 109 33 55 | 2285 | 107 47 34 | 2281 |
| ;ulus W. | 103 39 41 | 2152 | 105 29 21 | 2155 | 107 18 57 | 2159 | 109 8 27 | 2162 |
| ca ♍ W. | 49 47 0 | 2130 | 51 37 14 | 2132 | 53 27 24 | 2135 | 55 17 30 | 2139 |
| rs E. | 47 13 27 | 2349 | 45 28 39 | 2355 | 43 43 59 | 2361 | 41 59 28 | 2368 |
| quilæ E. | 53 38 33 | 2818 | 52 4 28 | 2856 | 50 31 12 | 2898 | 48 58 51 | 2946 |
| urn E. | 66 40 30 | 2174 | 64 51 23 | 2178 | 63 2 22 | 2182 | 61 13 27 | 2186 |
| nalhaut E. | 81 29 45 | 2620 | 79 51 17 | 2627 | 78 12 59 | 2637 | 76 34 55 | 2649 |
| egasi E. | 98 54 48 | 2275 | 97 8 12 | 2277 | 95 21 39 | 2279 | 93 35 8 | 2281 |
| ;ulus W. | 118 14 13 | 2190 | 120 2 56 | 2197 | 121 51 28 | 2204 | 123 39 49 | 2213 |
| ca ♍ W. | 64 26 26 | 2162 | 66 15 51 | 2169 | 68 5 6 | 2175 | 69 54 12 | 2181 |
| ares W. | 19 43 8 | 2337 | 21 28 14 | 2316 | 23 13 50 | 2302 | 24 59 46 | 2293 |
| rs E. | 33 20 7 | 2424 | 31 37 6 | 2438 | 29 54 26 | 2456 | 28 12 11 | 2477 |
| quilæ E. | 41 34 24 | 3284 | 40 9 54 | 3378 | 38 47 12 | 3486 | 37 26 32 | 3608 |
| urn E. | 52 10 49 | 2218 | 50 22 48 | 2226 | 48 34 59 | 2235 | 46 47 23 | 2243 |
| nalhaut E. | 68 29 5 | 2730 | 66 53 5 | 2752 | 65 17 34 | 2775 | 63 42 33 | 2801 |
| 'egasi E. | 84 43 59 | 2306 | 82 58 9 | 2314 | 81 12 30 | 2322 | 79 27 2 | 2330 |
| ; E. | 129 34 4 | 2464 | 127 52 0 | 2470 | 126 10 5 | 2477 | 124 28 19 | 2484 |
| :a ♍ W. | 78 57 2 | 2219 | 80 45 1 | 2228 | 82 32 47 | 2236 | 84 20 21 | 2245 |
| ares W. | 33 51 34 | 2284 | 35 37 57 | 2287 | 37 24 16 | 2290 | 39 10 30 | 2295 |
| rs E. | 19 49 44 | 2644 | 18 11 49 | 2704 | 16 35 14 | 2780 | 15 0 20 | 2883 |
| urn E. | 37 53 12 | 2302 | 36 7 16 | 2317 | 34 21 41 | 2333 | 32 36 29 | 2350 |
| nalhaut E. | 55 56 59 | 2970 | 54 26 8 | 3012 | 52 56 10 | 3060 | 51 27 11 | 3111 |
| 'egasi E. | 70 43 5 | 2382 | 68 59 5 | 2394 | 67 15 22 | 2408 | 65 31 58 | 2422 |
| ; E. | 116 2 6 | 2524 | 114 21 26 | 2533 | 112 40 58 | 2541 | 111 0 42 | 2551 |
| :a ♍ W. | 93 14 47 | 2292 | 95 0 58 | 2302 | 96 46 55 | 2312 | 98 32 37 | 2322 |
| ares W. | 47 59 32 | 2328 | 49 44 51 | 2337 | 51 29 57 | 2344 | 53 14 52 | 2353 |
| urn E. | 23 57 39 | 2470 | 22 15 44 | 2508 | 20 34 42 | 2551 | 18 54 39 | 2605 |
| nalhaut E. | 44 19 41 | 3451 | 42 58 22 | 3541 | 41 38 43 | 3642 | 40 20 54 | 3752 |
| egasi E. | 57 0 15 | 2502 | 55 19 5 | 2522 | 53 38 22 | 2542 | 51 58 7 | 2563 |
| ; E. | 102 42 46 | 2601 | 101 3 52 | 2611 | 99 25 12 | 2622 | 97 46 47 | 2632 |
| ca ♍ W. | 107 17 28 | 2373 | 109 1 42 | 2383 | 110 45 41 | 2393 | 112 29 25 | 2404 |
| ares W. | 61 56 14 | 2398 | 63 39 51 | 2408 | 65 23 14 | 2418 | 67 6 23 | 2428 |
| nalhaut E. | 34 25 3 | 4556 | 33 22 0 | 4786 | 32 22 12 | 5051 | 31 25 57 | 5357 |
| egasi E. | 43 44 51 | 2694 | 42 8 3 | 2727 | 40 31 59 | 2762 | 38 56 41 | 2802 |
| ; E. | 89 38 19 | 2687 | 88 1 22 | 2699 | 86 24 40 | 2709 | 84 48 12 | 2720 |
| ares W. | 75 38 40 | 2477 | 77 20 26 | 2487 | 79 1 58 | 2497 | 80 43 16 | 2507 |
| rs W. | 22 22 16 | 2807 | 23 56 34 | 2798 | 25 31 4 | 2792 | 27 5 43 | 2789 |
| egasi E. | 31 14 49 | 3074 | 29 46 7 | 3153 | 28 19 1 | 3243 | 26 53 43 | 3349 |
| ; E. | 76 49 33 | 2776 | 75 14 33 | 2787 | 73 39 48 | 2797 | 72 5 16 | 2809 |
| ares W. | 89 6 17 | 2556 | 90 46 12 | 2566 | 92 25 53 | 2575 | 94 5 22 | 2586 |
| rs W. | 34 59 12 | 2797 | 36 33 44 | 2802 | 38 8 10 | 2808 | 39 42 28 | 2813 |
| ; E. | 64 16 10 | 2862 | 62 43 2 | 2873 | 61 10 8 | 2883 | 59 37 27 | 2894 |

## APPROXIMATE SIDEREAL TIMES

OF THE

## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER

AND OF THE

## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

THE SATELLITES OF JUPITER

are not visible this Month,

JUPITER being too near to the SUN.

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be added to Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| Thur. | 1 | 2 34 2·02 | N.15 7 10·7 | 15 52·9 | 3 3·32 | 2 37 5·34 |
| Frid. | 2 | 2 37 51·31 | 15 25 10·3 | 15 52·7 | 3 10·58 | 2 41 1·89 |
| Sat. | 3 | 2 41 41·17 | 15 42 54·7 | 15 52·5 | 3 17·27 | 2 44 58·45 |
| *Sun.* | 4 | 2 45 31·60 | 16 0 23·5 | 15 52·2 | 3 23·40 | 2 48 55·00 |
| Mon. | 5 | 2 49 22·59 | 16 17 36·5 | 15 52·0 | 3 28·96 | 2 52 51·56 |
| Tues. | 6 | 2 53 14·15 | 16 34 33·3 | 15 51·8 | 3 33·96 | 2 56 48·11 |
| Wed. | 7 | 2 57 6·28 | 16 51 13·6 | 15 51·6 | 3 38·39 | 3 0 44·67 |
| Thur. | 8 | 3 0 58·97 | 17 7 37·1 | 15 51·4 | 3 42·25 | 3 4 41·22 |
| Frid. | 9 | 3 4 52·23 | 17 23 43·4 | 15 51·1 | 3 45·54 | 3 8 37·78 |
| Sat. | 10 | 3 8 46·06 | 17 39 32·3 | 15 50·9 | 3 48·27 | 3 12 34·33 |
| *Sun.* | 11 | 3 12 40·44 | 17 55 3·5 | 15 50·7 | 3 50·44 | 3 16 30·89 |
| Mon. | 12 | 3 16 35·39 | 18 10 16·6 | 15 50·5 | 3 52·06 | 3 20 27·44 |
| Tues. | 13 | 3 20 30·88 | 18 25 11·4 | 15 50·3 | 3 53·12 | 3 24 24·00 |
| Wed. | 14 | 3 24 26·93 | 18 39 47·6 | 15 50·1 | 3 53·62 | 3 28 20·55 |
| Thur. | 15 | 3 28 23·54 | 18 54 5·0 | 15 49·9 | 3 53·57 | 3 32 17·11 |
| Frid. | 16 | 3 32 20·70 | 19 8 3·2 | 15 49·8 | 3 52·97 | 3 36 13·67 |
| Sat. | 17 | 3 36 18·40 | 19 21 42·0 | 15 49·6 | 3 51·82 | 3 40 10·22 |
| *Sun.* | 18 | 3 40 16·65 | 19 35 1·1 | 15 49·4 | 3 50·13 | 3 44 6·78 |
| Mon. | 19 | 3 44 15·45 | 19 48 0·3 | 15 49·2 | 3 47·89 | 3 48 3·33 |
| Tues. | 20 | 3 48 14·78 | 20 0 39·3 | 15 49·0 | 3 45·11 | 3 51 59·89 |
| Wed. | 21 | 3 52 14·65 | 20 12 57·8 | 15 48·9 | 3 41·79 | 3 55 56·45 |
| Thur. | 22 | 3 56 15·07 | 20 24 55·8 | 15 48·7 | 3 37·93 | 3 59 53·00 |
| Frid. | 23 | 4 0 16·02 | 20 36 32·8 | 15 48·5 | 3 33·54 | 4 3 49·56 |
| Sat. | 24 | 4 4 17·49 | 20 47 48·6 | 15 48·3 | 3 28·62 | 4 7 46·11 |
| *Sun.* | 25 | 4 8 19·49 | 20 58 43·1 | 15 48·2 | 3 23·18 | 4 11 42·67 |
| Mon. | 26 | 4 12 22·00 | 21 9 16·0 | 15 48·0 | 3 17·23 | 4 15 39·23 |
| Tues. | 27 | 4 16 25·01 | 21 19 27·1 | 15 47·9 | 3 10·77 | 4 19 35·78 |
| Wed. | 28 | 4 20 28·52 | 21 29 16·1 | 15 47·7 | 3 3·82 | 4 23 32·34 |
| Thur. | 29 | 4 24 32·51 | 21 38 42·9 | 15 47·5 | 2 56·39 | 4 27 28·90 |
| Frid. | 30 | 4 28 36·97 | 21 47 47·3 | 15 47·4 | 2 48·48 | 4 31 25·45 |
| Sat. | 31 | 4 32 41·89 | 21 56 28·9 | 15 47·3 | 2 40·13 | 4 35 22·01 |
| *Sun.* | 32 | 4 36 47·23 | N.22 4 47·7 | 15 47·1 | 2 31·34 | 4 39 18·57 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 40 56 13·8 | N.0·51 | 0·0036118 | 15 37·0 | 15 32·5 | 57 18·7 | 57 2·2 |
| 2 | 41 54 23·0 | 0·48 | 0·0037208 | 15 28·3 | 15 24·0 | 56 46·6 | 56 30·9 |
| 3 | 42 52 30·8 | 0·41 | 0·0038282 | 15 19·9 | 15 15·9 | 56 15·7 | 56 0·9 |
| 4 | 43 50 37·1 | 0·32 | 0·0039340 | 15 11·9 | 15 8·2 | 55 46·4 | 55 32·7 |
| 5 | 44 48 41·9 | 0·21 | 0·0040382 | 15 4·5 | 15 1·1 | 55 19·4 | 55 6·9 |
| 6 | 45 46 45·0 | N.0·09 | 0·0041405 | 14 57·9 | 14 54·9 | 54 55·1 | 54 44·2 |
| 7 | 46 44 46·6 | S.0·04 | 0·0042410 | 14 52·2 | 14 49·7 | 54 34·0 | 54 25·1 |
| 8 | 47 42 46·5 | 0·17 | 0·0043396 | 14 47·7 | 14 45·9 | 54 17·6 | 54 11·2 |
| 9 | 48 40 44·8 | 0·29 | 0·0044363 | 14 44·7 | 14 43·9 | 54 6·5 | 54 3·6 |
| 10 | 49 38 41·4 | 0·40 | 0·0045312 | 14 43·6 | 14 43·8 | 54 2·7 | 54 3·4 |
| 11 | 50 36 36·1 | 0·49 | 0·0046242 | 14 44·7 | 14 46·1 | 54 6·6 | 54 11·9 |
| 12 | 51 34 29·1 | 0·56 | 0·0047157 | 14 48·2 | 14 51·0 | 54 19·5 | 54 29·6 |
| 13 | 52 32 20·3 | 0·60 | 0·0048055 | 14 54·4 | 14 58·5 | 54 42·2 | 54 57·2 |
| 14 | 53 30 9·7 | 0·61 | 0·0048939 | 15 3·3 | 15 8·7 | 55 14·7 | 55 34·5 |
| 15 | 54 27 57·4 | 0·59 | 0·0049809 | 15 14·6 | 15 21·1 | 55 56·3 | 56 20·2 |
| 16 | 55 25 43·5 | 0·54 | 0·0050667 | 15 28·1 | 15 35·4 | 56 45·8 | 57 12·5 |
| 17 | 56 23 27·9 | 0·46 | 0·0051513 | 15 42·9 | 15 50·5 | 57 40·2 | 58 8·2 |
| 18 | 57 21 10·7 | 0·35 | 0·0052348 | 15 58·1 | 16 5·4 | 58 35·9 | 59 2·8 |
| 19 | 58 18 52·0 | 0·23 | 0·0053172 | 16 12·3 | 16 18·7 | 59 28·2 | 59 51·4 |
| 20 | 59 16 31·8 | S.0·10 | 0·0053985 | 16 24·3 | 16 29·0 | 60 12·1 | 60 29·3 |
| 21 | 60 14 10·2 | N.0·04 | 0·0054789 | 16 32·7 | 16 35·2 | 60 42·8 | 60 52·0 |
| 22 | 61 11 47·5 | 0·17 | 0·0055583 | 16 36·6 | 16 36·7 | 60 57·1 | 60 57·5 |
| 23 | 62 9 23·6 | 0·29 | 0·0056367 | 16 35·6 | 16 33·5 | 60 53·7 | 60 45·9 |
| 24 | 63 6 58·5 | 0·40 | 0·0057141 | 16 30·3 | 16 26·2 | 60 34·1 | 60 19·0 |
| 25 | 64 4 32·5 | 0·49 | 0·0057903 | 16 21·3 | 16 15·8 | 60 1·0 | 59 40·9 |
| 26 | 65 2 5·5 | 0·55 | 0·0058651 | 16 9·8 | 16 3·6 | 59 19·0 | 58 56·2 |
| 27 | 65 59 37·6 | 0·58 | 0·0059386 | 15 57·2 | 15 50·7 | 58 32·5 | 58 8·9 |
| 28 | 66 57 8·9 | 0·59 | 0·0060104 | 15 44·4 | 15 38·2 | 57 45·6 | 57 23·0 |
| 29 | 67 54 39·4 | 0·56 | 0·0060805 | 15 32·2 | 15 26·5 | 57 0·9 | 56 40·0 |
| 30 | 68 52 9·2 | 0·51 | 0·0061487 | 15 21·2 | 15 16·2 | 56 20·5 | 56 2·1 |
| 31 | 69 49 38·2 | 0·42 | 0·0062149 | 15 11·5 | 15 7·2 | 55 44·9 | 55 29·1 |
| 32 | 70 47 6·4 | N.0·32 | 0·0062789 | 15 3·2 | 14 59·6 | 55 14·5 | 55 1·1 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Thur. | 1 | 342 59 31 ·5 | 349 37 31 ·0 | N.5 1 57 ·2 | N.4 49 8 ·8 | 24 ·7 | 20 51 ·9 |
| Frid. | 2 | 356 11 49 ·3 | 2 42 30 ·6 | 4 32 37 ·9 | 4 12 43 ·9 | 25 ·7 | 21 38 ·2 |
| Sat. | 3 | 9 9 39 ·9 | 15 33 23 ·1 | 3 49 46 ·3 | 3 24 7 ·0 | 26 ·7 | 22 24 ·6 |
| *Sun.* | 4 | 21 53 46 ·0 | 28 10 54 ·9 | 2 56 8 ·7 | 2 26 15 ·1 | 27 ·7 | 23 11 ·5 |
| Mon. | 5 | 34 24 57 ·6 | 40 36 1 ·6 | 1 54 50 ·2 | 1 22 17 ·6 | 28 ·7 | 23 59 ·3 |
| Tues. | 6 | 46 44 16 ·3 | 52 49 52 ·4 | N.0 49 1 ·4 | N.0 15 25 ·1 | 0 ·1 | ♂ |
| Wed. | 7 | 58 53 1 ·9 | 64 53 58 ·7 | S.0 18 9 ·1 | S.0 51 19 ·3 | 1 ·1 | 0 47 ·7 |
| Thur. | 8 | 70 52 58 ·7 | 76 50 19 ·1 | 1 23 45 ·5 | 1 55 7 ·7 | 2 ·1 | 1 36 ·5 |
| Frid. | 9 | 82 46 20 ·2 | 88 41 23 ·8 | 2 25 8 ·3 | 2 53 30 ·5 | 3 ·1 | 2 25 ·2 |
| Sat. | 10 | 94 35 53 ·9 | 100 30 16 ·4 | 3 19 58 ·7 | 3 44 18 ·2 | 4 ·1 | 3 13 ·2 |
| *Sun.* | 11 | 106 24 58 ·9 | 112 20 31 ·1 | 4 6 15 ·0 | 4 25 37 ·9 | 5 ·1 | 4 0 ·1 |
| Mon. | 12 | 118 17 23 ·9 | 124 16 9 ·4 | 4 42 13 ·3 | 4 55 50 ·5 | 6 ·1 | 4 46 ·0 |
| Tues. | 13 | 130 17 21 ·1 | 136 21 32 ·4 | 5 6 19 ·0 | 5 13 28 ·3 | 7 ·1 | 5 30 ·9 |
| Wed. | 14 | 142 29 16 ·5 | 148 41 7 ·2 | 5 17 8 ·8 | 5 17 12 ·0 | 8 ·1 | 6 15 ·3 |
| Thur. | 15 | 154 57 35 ·7 | 161 19 12 ·0 | 5 13 29 ·8 | 5 5 55 ·9 | 9 ·1 | 7 0 ·0 |
| Frid. | 16 | 167 46 23 ·1 | 174 19 31 ·7 | 4 54 25 ·2 | 4 38 55 ·5 | 10 ·1 | 7 45 ·6 |
| Sat. | 17 | 180 58 56 ·0 | 187 44 48 ·0 | 4 19 27 ·3 | 3 56 5 ·0 | 11 ·1 | 8 33 ·2 |
| *Sun.* | 18 | 194 37 12 ·6 | 201 36 6 ·8 | 3 28 57 ·1 | 2 58 18 ·0 | 12 ·1 | 9 23 ·7 |
| Mon. | 19 | 208 41 18 ·6 | 215 52 26 ·8 | 2 24 28 ·0 | 1 47 52 ·7 | 13 ·1 | 10 17 ·9 |
| Tues. | 20 | 223 9 0 ·5 | 230 30 19 ·9 | S.1 9 5 ·1 | S.0 28 43 ·4 | 14 ·1 | 11 16 ·0 |
| Wed. | 21 | 237 55 36 ·3 | 245 23 53 ·9 | N.0 12 28 ·4 | N.0 53 44 ·2 | 15 ·1 | 12 17 ·4 |
| Thur. | 22 | 252 54 11 ·7 | 260 25 25 ·3 | 1 34 14 ·5 | 2 13 10 ·7 | 16 ·1 | 13 20 ·5 |
| Frid. | 23 | 267 56 28 ·9 | 275 26 18 ·4 | 2 49 46 ·4 | 3 23 19 ·5 | 17 ·1 | 14 23 ·2 |
| Sat. | 24 | 282 53 53 ·6 | 290 18 19 ·8 | 3 53 13 ·6 | 4 18 59 ·4 | 18 ·1 | 15 23 ·4 |
| *Sun.* | 25 | 297 38 49 ·7 | 304 54 44 ·3 | 4 40 14 ·3 | 4 56 44 ·4 | 19 ·1 | 16 20 ·0 |
| Mon. | 26 | 312 5 33 ·7 | 319 10 56 ·7 | 5 8 22 ·7 | 5 15 8 ·3 | 20 ·1 | 17 13 ·0 |
| Tues. | 27 | 326 10 40 ·8 | 333 4 40 ·9 | 5 17 6 ·1 | 5 14 26 ·4 | 21 ·1 | 18 2 ·8 |
| Wed. | 28 | 339 52 59 ·0 | 346 35 43 ·3 | 5 7 22 ·4 | 4 56 10 ·6 | 22 ·1 | 18 50 ·5 |
| Thur. | 29 | 353 13 5 ·3 | 359 45 21 ·7 | 4 41 9 ·6 | 4 22 39 ·9 | 23 ·1 | 19 36 ·8 |
| Frid. | 30 | 6 12 50 ·9 | 12 35 53 ·3 | 4 1 2 ·9 | 3 36 39 ·1 | 24 ·1 | 20 22 ·8 |
| Sat. | 31 | 18 54 50 ·0 | 25 10 2 ·6 | 3 9 52 ·2 | 2 41 4 ·3 | 25 ·1 | 21 9 ·1 |
| *Sun.* | 32 | 31 21 53 ·0 | 37 30 41 ·1 | N.2 10 38 ·0 | N.1 38 55 ·7 | 26 ·1 | 21 56 ·0 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 49 35 ·49 | S.2 2 7 ·8 | 118 ·07 |
| 1 | 22 51 39 ·64 | 1 50 19 ·4 | 118 ·08 |
| 2 | 22 53 43 ·67 | 1 38 30 ·9 | 118 ·07 |
| 3 | 22 55 47 ·59 | 1 26 42 ·5 | 118 ·05 |
| 4 | 22 57 51 ·40 | 1 14 54 ·2 | 118 ·02 |
| 5 | 22 59 55 ·10 | 1 3 6 ·1 | 117 ·98 |
| 6 | 23 1 58 ·70 | 0 51 18 ·2 | 117 ·95 |
| 7 | 23 4 2 ·20 | 0 39 30 ·5 | 117 ·88 |
| 8 | 23 6 5 ·60 | 0 27 43 ·2 | 117 ·83 |
| 9 | 23 8 8 ·91 | 0 15 56 ·2 | 117 ·75 |
| 10 | 23 10 12 ·12 | S.0 4 9 ·7 | 117 ·67 |
| 11 | 23 12 15 ·26 | N.0 7 36 ·3 | 117 ·58 |
| 12 | 23 14 18 ·31 | 0 19 21 ·8 | 117 ·48 |
| 13 | 23 16 21 ·26 | 0 31 6 ·7 | 117 ·35 |
| 14 | 23 18 24 ·13 | 0 42 50 ·8 | 117 ·25 |
| 15 | 23 20 26 ·93 | 0 54 34 ·3 | 117 ·12 |
| 16 | 23 22 29 ·65 | 1 6 17 ·0 | 116 ·98 |
| 17 | 23 24 32 ·30 | 1 17 58 ·9 | 116 ·85 |
| 18 | 23 26 34 ·88 | 1 29 40 ·0 | 116 ·67 |
| 19 | 23 28 37 ·40 | 1 41 20 ·0 | 116 ·53 |
| 20 | 23 30 39 ·86 | 1 52 59 ·2 | 116 ·33 |
| 21 | 23 32 42 ·25 | 2 4 37 ·2 | 116 ·17 |
| 22 | 23 34 44 ·59 | 2 16 14 ·2 | 115 ·98 |
| 23 | 23 36 46 ·88 | N.2 27 50 ·1 | 115 ·78 |
| | *FRIDAY* 2. | | |
| 0 | 23 38 49 ·13 | N.2 39 24 ·8 | 115 ·58 |
| 1 | 23 40 51 ·32 | 2 50 58 ·3 | 115 ·35 |
| 2 | 23 42 53 ·47 | 3 2 30 ·4 | 115 ·15 |
| 3 | 23 44 55 ·57 | 3 14 1 ·3 | 114 ·90 |
| 4 | 23 46 57 ·64 | 3 25 30 ·7 | 114 ·67 |
| 5 | 23 48 59 ·67 | 3 36 58 ·7 | 114 ·40 |
| 6 | 23 51 1 ·67 | 3 48 25 ·1 | 114 ·17 |
| 7 | 23 53 3 ·64 | 3 59 50 ·1 | 113 ·88 |
| 8 | 23 55 5 ·58 | 4 11 13 ·4 | 113 ·62 |
| 9 | 23 57 7 ·50 | 4 22 35 ·1 | 113 ·33 |
| 10 | 23 59 9 ·40 | 4 33 55 ·1 | 113 ·03 |
| 11 | 0 1 11 ·28 | 4 45 13 ·3 | 112 ·73 |
| 12 | 0 3 13 ·14 | 4 56 29 ·7 | 112 ·42 |
| 13 | 0 5 14 ·99 | 5 7 44 ·2 | 112 ·12 |
| 14 | 0 7 16 ·82 | 5 18 56 ·9 | 111 ·78 |
| 15 | 0 9 18 ·65 | 5 30 7 ·6 | 111 ·45 |
| 16 | 0 11 20 ·47 | 5 41 16 ·3 | 111 ·10 |
| 17 | 0 13 22 ·29 | 5 52 22 ·9 | 110 ·75 |
| 18 | 0 15 24 ·11 | 6 3 27 ·4 | 110 ·40 |
| 19 | 0 17 25 ·93 | 6 14 29 ·8 | 110 ·03 |
| 20 | 0 19 27 ·75 | 6 25 30 ·0 | 109 ·65 |
| 21 | 0 21 29 ·57 | 6 36 27 ·9 | 109 ·28 |
| 22 | 0 23 31 ·41 | 6 47 23 ·6 | 108 ·88 |
| 23 | 0 25 33 ·26 | 6 58 16 ·9 | 108 ·48 |
| *24* | *0 27 35 ·12* | N.7 9 7 ·8 | |

| Hour. | Right Ascension. | Declination. | D |
|---|---|---|---|
| | *SATURDAY* 3. | | |
| | h m s | ° ′ ″ | |
| 0 | 0 27 35 ·12 | N. 7 9 7 ·8 | 1 |
| 1 | 0 29 37 ·00 | 7 19 56 ·3 | 1 |
| 2 | 0 31 38 ·89 | 7 30 42 ·3 | 1 |
| 3 | 0 33 40 ·81 | 7 41 25 ·8 | 1 |
| 4 | 0 35 42 ·75 | 7 52 6 ·6 | 1 |
| 5 | 0 37 44 ·71 | 8 2 44 ·9 | 1 |
| 6 | 0 39 46 ·70 | 8 13 20 ·5 | 1 |
| 7 | 0 41 48 ·71 | 8 23 53 ·4 | 1 |
| 8 | 0 43 50 ·76 | 8 34 23 ·5 | 1 |
| 9 | 0 45 52 ·84 | 8 44 50 ·8 | 1 |
| 10 | 0 47 54 ·96 | 8 55 15 ·1 | 1 |
| 11 | 0 49 57 ·11 | 9 5 36 ·7 | 1 |
| 12 | 0 51 59 ·29 | 9 15 55 ·3 | 1 |
| 13 | 0 54 1 ·52 | 9 26 10 ·9 | 1 |
| 14 | 0 56 3 ·79 | 9 36 23 ·4 | 1 |
| 15 | 0 58 6 ·10 | 9 46 32 ·9 | 1 |
| 16 | 1 0 8 ·46 | 9 56 39 ·2 | 1 |
| 17 | 1 2 10 ·86 | 10 6 42 ·4 | |
| 18 | 1 4 13 ·31 | 10 16 42 ·3 | |
| 19 | 1 6 15 ·81 | 10 26 39 ·0 | |
| 20 | 1 8 18 ·37 | 10 36 32 ·3 | |
| 21 | 1 10 20 ·97 | 10 46 22 ·3 | |
| 22 | 1 12 23 ·64 | 10 56 8 ·9 | |
| 23 | 1 14 26 ·35 | N.11 5 52 ·1 | |
| | *SUNDAY* 4. | | |
| 0 | 1 16 29 ·13 | N.11 15 31 ·8 | |
| 1 | 1 18 31 ·96 | 11 25 8 ·0 | |
| 2 | 1 20 34 ·86 | 11 34 40 ·6 | |
| 3 | 1 22 37 ·81 | 11 44 9 ·5 | |
| 4 | 1 24 40 ·83 | 11 53 34 ·9 | |
| 5 | 1 26 43 ·91 | 12 2 56 ·5 | |
| 6 | 1 28 47 ·05 | 12 12 14 ·4 | |
| 7 | 1 30 50 ·26 | 12 21 28 ·6 | |
| 8 | 1 32 53 ·54 | 12 30 38 ·9 | |
| 9 | 1 34 56 ·88 | 12 39 45 ·3 | |
| 10 | 1 37 0 ·30 | 12 48 47 ·9 | |
| 11 | 1 39 3 ·78 | 12 57 46 ·5 | |
| 12 | 1 41 7 ·33 | 13 6 41 ·2 | |
| 13 | 1 43 10 ·96 | 13 15 31 ·8 | |
| 14 | 1 45 14 ·66 | 13 24 18 ·4 | |
| 15 | 1 47 18 ·43 | 13 33 0 ·9 | |
| 16 | 1 49 22 ·27 | 13 41 39 ·3 | |
| 17 | 1 51 26 ·19 | 13 50 13 ·5 | |
| 18 | 1 53 30 ·19 | 13 58 43 ·4 | |
| 19 | 1 55 34 ·26 | 14 7 9 ·1 | |
| 20 | 1 57 38 ·40 | 14 15 30 ·6 | |
| 21 | 1 59 42 ·62 | 14 23 47 ·7 | |
| 22 | 2 1 46 ·92 | 14 32 0 ·4 | |
| 23 | 2 3 51 ·29 | 14 40 8 ·7 | |
| 24 | 2 5 55 ·74 | N.14 48 12 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *MONDAY* 5. | | |
| h m s | ° ′ ″ | ″ |
| 2 5 55 ·74 | N.14 48 12 ·6 | 79 ·90 |
| 2 8 0 ·27 | 14 56 12 ·0 | 79 ·15 |
| 2 10 4 ·87 | 15 4 6 ·9 | 78 ·38 |
| 2 12 9 ·55 | 15 11 57 ·2 | 77 ·63 |
| 2 14 14 ·31 | 15 19 43 ·0 | 76 ·85 |
| 2 16 19 ·15 | 15 27 24 ·1 | 76 ·07 |
| 2 18 24 ·07 | 15 35 0 ·5 | 75 ·30 |
| 2 20 29 ·06 | 15 42 32 ·3 | 74 ·52 |
| 2 22 34 ·14 | 15 49 59 ·4 | 73 ·72 |
| 2 24 39 ·29 | 15 57 21 ·7 | 72 ·92 |
| 2 26 44 ·51 | 16 4 39 ·2 | 72 ·12 |
| 2 28 49 ·82 | 16 11 51 ·9 | 71 ·30 |
| 2 30 55 ·20 | 16 18 59 ·7 | 70 ·48 |
| 2 33 0 ·66 | 16 26 2 ·6 | 69 ·68 |
| 2 35 6 ·19 | 16 33 0 ·7 | 68 ·83 |
| 2 37 11 ·80 | 16 39 53 ·7 | 68 ·02 |
| 2 39 17 ·49 | 16 46 41 ·8 | 67 ·18 |
| 2 41 23 ·25 | 16 53 24 ·9 | 66 ·35 |
| 2 43 29 ·08 | 17 0 3 ·0 | 65 ·50 |
| 2 45 34 ·99 | 17 6 36 ·0 | 64 ·63 |
| 2 47 40 ·97 | 17 13 3 ·8 | 63 ·80 |
| 2 49 47 ·02 | 17 19 26 ·6 | 62 ·93 |
| 2 51 53 ·15 | 17 25 44 ·2 | 62 ·07 |
| 2 53 59 ·34 | N.17 31 56 ·6 | 61 ·20 |
| *TUESDAY* 6. | | |
| 2 56 5 ·60 | N.17 38 3 ·8 | 60 ·33 |
| 2 58 11 ·94 | 17 44 5 ·8 | 59 ·45 |
| 3 0 18 ·34 | 17 50 2 ·5 | 58 ·57 |
| 3 2 24 ·81 | 17 55 53 ·9 | 57 ·68 |
| 3 4 31 ·34 | 18 1 40 ·0 | 56 ·80 |
| 3 6 37 ·94 | 18 7 20 ·8 | 55 ·90 |
| 3 8 44 ·60 | 18 12 56 ·2 | 55 ·00 |
| 3 10 51 ·33 | 18 18 26 ·2 | 54 ·10 |
| 3 12 58 ·12 | 18 23 50 ·8 | 53 ·18 |
| 3 15 4 ·97 | 18 29 9 ·9 | 52 ·28 |
| 3 17 11 ·88 | 18 34 23 ·6 | 51 ·37 |
| 3 19 18 ·84 | 18 39 31 ·8 | 50 ·45 |
| 3 21 25 ·86 | 18 44 34 ·5 | 49 ·53 |
| 3 23 32 ·94 | 18 49 31 ·7 | 48 ·60 |
| 3 25 40 ·07 | 18 54 23 ·3 | 47 ·67 |
| 3 27 47 ·26 | 18 59 9 ·3 | 46 ·75 |
| 3 29 54 ·49 | 19 3 49 ·8 | 45 ·80 |
| 3 32 1 ·78 | 19 8 24 ·6 | 44 ·87 |
| 3 34 9 ·11 | 19 12 53 ·8 | 43 ·93 |
| 3 36 16 ·49 | 19 17 17 ·4 | 42 ·98 |
| 3 38 23 ·91 | 19 21 35 ·3 | 42 ·05 |
| 3 40 31 ·38 | 19 25 47 ·6 | 41 ·08 |
| 3 42 38 ·89 | 19 29 54 ·1 | 40 ·13 |
| 3 44 46 ·44 | 19 33 54 ·9 | 39 ·18 |
| 3 46 54 ·03 | N.19 37 50 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| *WEDNESDAY* 7. | | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 46 54 ·03 | N.19 37 50 ·0 | 38 ·23 |
| 1 | 3 49 1 ·66 | 19 41 39 ·4 | 37 ·27 |
| 2 | 3 51 9 ·32 | 19 45 23 ·0 | 36 ·30 |
| 3 | 3 53 17 ·01 | 19 49 0 ·8 | 35 ·33 |
| 4 | 3 55 24 ·73 | 19 52 32 ·8 | 34 ·38 |
| 5 | 3 57 32 ·48 | 19 55 59 ·1 | 33 ·40 |
| 6 | 3 59 40 ·26 | 19 59 19 ·5 | 32 ·43 |
| 7 | 4 1 48 ·07 | 20 2 34 ·1 | 31 ·45 |
| 8 | 4 3 55 ·90 | 20 5 42 ·8 | 30 ·48 |
| 9 | 4 6 3 ·75 | 20 8 45 ·7 | 29 ·52 |
| 10 | 4 8 11 ·62 | 20 11 42 ·8 | 28 ·53 |
| 11 | 4 10 19 ·50 | 20 14 34 ·0 | 27 ·55 |
| 12 | 4 12 27 ·40 | 20 17 19 ·3 | 26 ·57 |
| 13 | 4 14 35 ·32 | 20 19 58 ·7 | 25 ·58 |
| 14 | 4 16 43 ·25 | 20 22 32 ·2 | 24 ·60 |
| 15 | 4 18 51 ·18 | 20 24 59 ·8 | 23 ·62 |
| 16 | 4 20 59 ·13 | 20 27 21 ·5 | 22 ·63 |
| 17 | 4 23 7 ·08 | 20 29 37 ·3 | 21 ·63 |
| 18 | 4 25 15 ·03 | 20 31 47 ·1 | 20 ·67 |
| 19 | 4 27 22 ·99 | 20 33 51 ·1 | 19 ·67 |
| 20 | 4 29 30 ·95 | 20 35 49 ·1 | 18 ·67 |
| 21 | 4 31 38 ·90 | 20 37 41 ·1 | 17 ·70 |
| 22 | 4 33 46 ·84 | 20 39 27 ·3 | 16 ·70 |
| 23 | 4 35 54 ·78 | N.20 41 7 ·5 | 15 ·70 |
| *THURSDAY* 8. | | | |
| 0 | 4 38 2 ·71 | N.20 42 41 ·7 | 14 ·72 |
| 1 | 4 40 10 ·63 | 20 44 10 ·0 | 13 ·73 |
| 2 | 4 42 18 ·54 | 20 45 32 ·4 | 12 ·73 |
| 3 | 4 44 26 ·42 | 20 46 48 ·8 | 11 ·75 |
| 4 | 4 46 34 ·30 | 20 47 59 ·3 | 10 ·75 |
| 5 | 4 48 42 ·15 | 20 49 3 ·8 | 9 ·75 |
| 6 | 4 50 49 ·98 | 20 50 2 ·3 | 8 ·78 |
| 7 | 4 52 57 ·78 | 20 50 55 ·0 | 7 ·77 |
| 8 | 4 55 5 ·56 | 20 51 41 ·6 | 6 ·80 |
| 9 | 4 57 13 ·31 | 20 52 22 ·4 | 5 ·80 |
| 10 | 4 59 21 ·04 | 20 52 57 ·2 | 4 ·80 |
| 11 | 5 1 28 ·72 | 20 53 26 ·0 | 3 ·82 |
| 12 | 5 3 36 ·37 | 20 53 48 ·9 | 2 ·83 |
| 13 | 5 5 43 ·99 | 20 54 5 ·9 | 1 ·83 |
| 14 | 5 7 51 ·57 | 20 54 16 ·9 | 0 ·85 |
| 15 | 5 9 59 ·11 | 20 54 22 ·0 | 0 ·13 |
| 16 | 5 12 6 ·60 | 20 54 21 ·2 | 1 ·12 |
| 17 | 5 14 14 ·06 | 20 54 14 ·5 | 2 ·10 |
| 18 | 5 16 21 ·46 | 20 54 1 ·9 | 3 ·08 |
| 19 | 5 18 28 ·82 | 20 53 43 ·4 | 4 ·07 |
| 20 | 5 20 36 ·12 | 20 53 19 ·0 | 5 ·05 |
| 21 | 5 22 43 ·38 | 20 52 48 ·7 | 6 ·03 |
| 22 | 5 24 50 ·58 | 20 52 12 ·5 | 7 ·00 |
| 23 | 5 26 57 ·72 | 20 51 30 ·5 | 7 ·98 |
| 24 | 5 29 4 ·80 | N.20 50 42 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 29 4 ·80 | N.20 50 42 ·6 | 8 ·95 |
| 1 | 5 31 11 ·82 | 20 49 48 ·9 | 9 ·93 |
| 2 | 5 33 18 ·79 | 20 48 49 ·3 | 10 ·88 |
| 3 | 5 35 25 ·68 | 20 47 44 ·0 | 11 ·87 |
| 4 | 5 37 32 ·52 | 20 46 32 ·8 | 12 ·83 |
| 5 | 5 39 39 ·28 | 20 45 15 ·8 | 13 ·80 |
| 6 | 5 41 45 ·98 | 20 43 53 ·0 | 14 ·77 |
| 7 | 5 43 52 ·60 | 20 42 24 ·4 | 15 ·72 |
| 8 | 5 45 59 ·16 | 20 40 50 ·1 | 16 ·67 |
| 9 | 5 48 5 ·64 | 20 39 10 ·1 | 17 ·63 |
| 10 | 5 50 12 ·04 | 20 37 24 ·3 | 18 ·60 |
| 11 | 5 52 18 ·37 | 20 35 32 ·7 | 19 ·53 |
| 12 | 5 54 24 ·62 | 20 33 35 ·5 | 20 ·48 |
| 13 | 5 56 30 ·79 | 20 31 32 ·6 | 21 ·43 |
| 14 | 5 58 36 ·88 | 20 29 24 ·0 | 22 ·38 |
| 15 | 6 0 42 ·88 | 20 27 9 ·7 | 23 ·32 |
| 16 | 6 2 48 ·80 | 20 24 49 ·8 | 24 ·27 |
| 17 | 6 4 54 ·63 | 20 22 24 ·2 | 25 ·20 |
| 18 | 6 7 0 ·38 | 20 19 53 ·0 | 26 ·12 |
| 19 | 6 9 6 ·04 | 20 17 16 ·3 | 27 ·07 |
| 20 | 6 11 11 ·60 | 20 14 33 ·9 | 27 ·97 |
| 21 | 6 13 17 ·08 | 20 11 46 ·1 | 28 ·92 |
| 22 | 6 15 22 ·47 | 20 8 52 ·6 | 29 ·82 |
| 23 | 6 17 27 ·76 | N.20 5 53 ·7 | 30 ·75 |
| | *SATURDAY* 10. | | |
| 0 | 6 19 32 ·95 | N.20 2 49 ·2 | 31 ·65 |
| 1 | 6 21 38 ·05 | 19 59 39 ·3 | 32 ·57 |
| 2 | 6 23 43 ·05 | 19 56 23 ·9 | 33 ·48 |
| 3 | 6 25 47 ·96 | 19 53 3 ·0 | 34 ·38 |
| 4 | 6 27 52 ·77 | 19 49 36 ·7 | 35 ·28 |
| 5 | 6 29 57 ·47 | 19 46 5 ·0 | 36 ·17 |
| 6 | 6 32 2 ·08 | 19 42 28 ·0 | 37 ·07 |
| 7 | 6 34 6 ·58 | 19 38 45 ·6 | 37 ·97 |
| 8 | 6 36 10 ·98 | 19 34 57 ·8 | 38 ·85 |
| 9 | 6 38 15 ·28 | 19 31 4 ·7 | 39 ·73 |
| 10 | 6 40 19 ·48 | 19 27 6 ·3 | 40 ·62 |
| 11 | 6 42 23 ·57 | 19 23 2 ·6 | 41 ·48 |
| 12 | 6 44 27 ·56 | 19 18 53 ·7 | 42 ·37 |
| 13 | 6 46 31 ·44 | 19 14 39 ·5 | 43 ·22 |
| 14 | 6 48 35 ·22 | 19 10 20 ·2 | 44 ·10 |
| 15 | 6 50 38 ·89 | 19 5 55 ·6 | 44 ·95 |
| 16 | 6 52 42 ·45 | 19 1 25 ·9 | 45 ·82 |
| 17 | 6 54 45 ·91 | 18 56 51 ·0 | 46 ·67 |
| 18 | 6 56 49 ·26 | 18 52 11 ·0 | 47 ·50 |
| 19 | 6 58 52 ·50 | 18 47 26 ·0 | 48 ·37 |
| 20 | 7 0 55 ·64 | 18 42 35 ·8 | 49 ·20 |
| 21 | 7 2 58 ·66 | 18 37 40 ·6 | 50 ·03 |
| 22 | 7 5 1 ·58 | 18 32 40 ·4 | 50 ·87 |
| 23 | 7 7 4 ·39 | 18 27 35 ·2 | 51 ·70 |
| 24 | 7 9 7 ·08 | N.18 22 25 ·0 | |

| Hour. | Right Ascension. | Declination. | D |
|---|---|---|---|
| | *SUNDAY* 11. | | |
| | h m s | ° ′ ″ | |
| 0 | 7 9 7 ·08 | N.18 22 25 ·0 | |
| 1 | 7 11 9 ·67 | 18 17 9 ·9 | |
| 2 | 7 13 12 ·15 | 18 11 49 ·8 | |
| 3 | 7 15 14 ·52 | 18 6 24 ·9 | |
| 4 | 7 17 16 ·79 | 18 0 55 ·0 | |
| 5 | 7 19 18 ·94 | 17 55 20 ·4 | |
| 6 | 7 21 20 ·99 | 17 49 40 ·9 | |
| 7 | 7 23 22 ·93 | 17 43 56 ·6 | |
| 8 | 7 25 24 ·76 | 17 38 7 ·5 | |
| 9 | 7 27 26 ·49 | 17 32 13 ·7 | |
| 10 | 7 29 28 ·11 | 17 26 15 ·2 | |
| 11 | 7 31 29 ·62 | 17 20 12 ·0 | |
| 12 | 7 33 31 ·03 | 17 14 4 ·1 | |
| 13 | 7 35 32 ·33 | 17 7 51 ·6 | |
| 14 | 7 37 33 ·53 | 17 1 34 ·5 | |
| 15 | 7 39 34 ·62 | 16 55 12 ·7 | |
| 16 | 7 41 35 ·62 | 16 48 46 ·5 | |
| 17 | 7 43 36 ·51 | 16 42 15 ·7 | |
| 18 | 7 45 37 ·29 | 16 35 40 ·4 | |
| 19 | 7 47 37 ·98 | 16 29 0 ·6 | |
| 20 | 7 49 38 ·56 | 16 22 16 ·4 | |
| 21 | 7 51 39 ·05 | 16 15 27 ·7 | |
| 22 | 7 53 39 ·44 | 16 8 34 ·7 | |
| 23 | 7 55 39 ·73 | N.16 1 37 ·2 | |
| | *MONDAY* 12. | | |
| 0 | 7 57 39 ·92 | N.15 54 35 ·5 | |
| 1 | 7 59 40 ·02 | 15 47 29 ·4 | |
| 2 | 8 1 40 ·02 | 15 40 19 ·1 | |
| 3 | 8 3 39 ·93 | 15 33 4 ·5 | |
| 4 | 8 5 39 ·75 | 15 25 45 ·7 | |
| 5 | 8 7 39 ·47 | 15 18 22 ·6 | |
| 6 | 8 9 39 ·11 | 15 10 55 ·4 | |
| 7 | 8 11 38 ·66 | 15 3 24 ·1 | |
| 8 | 8 13 38 ·12 | 14 55 48 ·6 | |
| 9 | 8 15 37 ·49 | 14 48 9 ·0 | |
| 10 | 8 17 36 ·79 | 14 40 25 ·4 | |
| 11 | 8 19 35 ·99 | 14 32 37 ·8 | |
| 12 | 8 21 35 ·12 | 14 24 46 ·1 | |
| 13 | 8 23 34 ·17 | 14 16 50 ·5 | |
| 14 | 8 25 33 ·14 | 14 8 50 ·9 | |
| 15 | 8 27 32 ·03 | 14 0 47 ·4 | |
| 16 | 8 29 30 ·85 | 13 52 40 ·0 | |
| 17 | 8 31 29 ·60 | 13 44 28 ·7 | |
| 18 | 8 33 28 ·28 | 13 36 13 ·7 | |
| 19 | 8 35 26 ·89 | 13 27 54 ·8 | |
| 20 | 8 37 25 ·42 | 13 19 32 ·1 | |
| 21 | 8 39 23 ·90 | 13 11 5 ·7 | |
| 22 | 8 41 22 ·31 | 13 2 35 ·6 | |
| 23 | 8 43 20 ·67 | 12 54 1 ·8 | |
| 24 | 8 45 18 ·95 | N.12 45 24 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|---|
| | *TUESDAY* 13. | | | | *THURSDAY* 15. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 0 | 8 45 18·95 | N.12 45 24·4 | 86·85 | 0 | 10 19 32·68 | N.4 49 57·8 | 109·63 |
| 1 | 8 47 17·18 | 12 36 43·3 | 87·43 | 1 | 10 21 31·08 | 4 39 0·0 | 109·97 |
| 2 | 8 49 15·36 | 12 27 58·7 | 88·03 | 2 | 10 23 29·56 | 4 28 0·2 | 110·30 |
| 3 | 8 51 13·48 | 12 19 10·5 | 88·63 | 3 | 10 25 28·12 | 4 16 58·4 | 110·62 |
| 4 | 8 53 11·55 | 12 10 18·7 | 89·20 | 4 | 10 27 26·76 | 4 5 54·7 | 110·93 |
| 5 | 8 55 9·57 | 12 1 23·5 | 89·78 | 5 | 10 29 25·48 | 3 54 49·1 | 111·23 |
| 6 | 8 57 7·54 | 11 52 24·8 | 90·37 | 6 | 10 31 24·30 | 3 43 41·7 | 111·53 |
| 7 | 8 59 5·46 | 11 43 22·6 | 90·93 | 7 | 10 33 23·21 | 3 32 32·5 | 111·83 |
| 8 | 9 1 3·35 | 11 34 17·0 | 91·48 | 8 | 10 35 22·22 | 3 21 21·5 | 112·12 |
| 9 | 9 3 1·19 | 11 25 8·1 | 92·07 | 9 | 10 37 21·32 | 3 10 8·8 | 112·40 |
| 10 | 9 4 59·00 | 11 15 55·7 | 92·60 | 10 | 10 39 20·53 | 2 58 54·4 | 112·68 |
| 11 | 9 6 56·76 | 11 6 40·1 | 93·15 | 11 | 10 41 19·85 | 2 47 38·3 | 112·93 |
| 12 | 9 8 54·49 | 10 57 21·2 | 93·70 | 12 | 10 43 19·27 | 2 36 20·7 | 113·20 |
| 13 | 9 10 52·19 | 10 47 59·0 | 94·23 | 13 | 10 45 18·81 | 2 25 1·5 | 113·45 |
| 14 | 9 12 49·86 | 10 38 33·6 | 94·77 | 14 | 10 47 18·47 | 2 13 40·8 | 113·70 |
| 15 | 9 14 47·51 | 10 29 5·0 | 95·30 | 15 | 10 49 18·25 | 2 2 18·6 | 113·93 |
| 16 | 9 16 45·13 | 10 19 33·2 | 95·82 | 16 | 10 51 18·15 | 1 50 55·0 | 114·17 |
| 17 | 9 18 42·73 | 10 9 58·3 | 96·33 | 17 | 10 53 18·18 | 1 39 30·0 | 114·38 |
| 18 | 9 20 40·31 | 10 0 20·3 | 96·85 | 18 | 10 55 18·34 | 1 28 3·7 | 114·60 |
| 19 | 9 22 37·87 | 9 50 39·2 | 97·35 | 19 | 10 57 18·64 | 1 16 36·1 | 114·80 |
| 20 | 9 24 35·43 | 9 40 55·1 | 97·85 | 20 | 10 59 19·08 | 1 5 7·3 | 115·02 |
| 21 | 9 26 32·97 | 9 31 8·0 | 98·37 | 21 | 11 1 19·66 | 0 53 37·2 | 115·20 |
| 22 | 9 28 30·50 | 9 21 17·8 | 98·83 | 22 | 11 3 20·38 | 0 42 6·0 | 115·38 |
| 23 | 9 30 28·02 | N. 9 11 24·8 | 99·33 | 23 | 11 5 21·26 | N.0 30 33·7 | 115·57 |
| | *WEDNESDAY* 14. | | | | *FRIDAY* 16. | | |
| 0 | 9 32 25·54 | N. 9 1 28·8 | 99·82 | 0 | 11 7 22·28 | N.0 19 0·3 | 115·73 |
| 1 | 9 34 23·06 | 8 51 29·9 | 100·28 | 1 | 11 9 23·46 | N.0 7 25·9 | 115·88 |
| 2 | 9 36 20·59 | 8 41 28·2 | 100·75 | 2 | 11 11 24·81 | S.0 4 9·4 | 116·05 |
| 3 | 9 38 18·12 | 8 31 23·7 | 101·23 | 3 | 11 13 26·31 | 0 15 45·7 | 116·18 |
| 4 | 9 40 15·66 | 8 21 16·3 | 101·67 | 4 | 11 15 27·99 | 0 27 22·8 | 116·33 |
| 5 | 9 42 13·21 | 8 11 6·3 | 102·13 | 5 | 11 17 29·83 | 0 39 0·8 | 116·45 |
| 6 | 9 44 10·77 | 8 0 53·5 | 102·58 | 6 | 11 19 31·86 | 0 50 39·5 | 116·57 |
| 7 | 9 46 8·36 | 7 50 38·0 | 103·02 | 7 | 11 21 34·05 | 1 2 18·9 | 116·68 |
| 8 | 9 48 5·96 | 7 40 19·9 | 103·47 | 8 | 11 23 36·44 | 1 13 59·0 | 116·78 |
| 9 | 9 50 3·58 | 7 29 59·1 | 103·88 | 9 | 11 25 39·01 | 1 25 39·7 | 116·87 |
| 10 | 9 52 1·23 | 7 19 35·8 | 104·32 | 10 | 11 27 41·76 | 1 37 20·9 | 116·97 |
| 11 | 9 53 58·91 | 7 9 9·9 | 104·73 | 11 | 11 29 44·71 | 1 49 2·7 | 117·03 |
| 12 | 9 55 56·61 | 6 58 41·5 | 105·15 | 12 | 11 31 47·86 | 2 0 44·9 | 117·10 |
| 13 | 9 57 54·35 | 6 48 10·6 | 105·55 | 13 | 11 33 51·21 | 2 12 27·5 | 117·15 |
| 14 | 9 59 52·13 | 6 37 37·3 | 105·95 | 14 | 11 35 54·76 | 2 24 10·4 | 117·22 |
| 15 | 10 1 49·95 | 6 27 1·6 | 106·35 | 15 | 11 37 58·52 | 2 35 53·7 | 117·23 |
| 16 | 10 3 47·81 | 6 16 23·5 | 106·73 | 16 | 11 40 2·49 | 2 47 37·1 | 117·27 |
| 17 | 10 5 45·73 | 6 5 43·1 | 107·12 | 17 | 11 42 6·68 | 2 59 20·7 | 117·28 |
| 18 | 10 7 43·68 | 5 55 0·4 | 107·50 | 18 | 11 44 11·09 | 3 11 4·4 | 117·30 |
| 19 | 10 9 41·70 | 5 44 15·4 | 107·87 | 19 | 11 46 15·71 | 3 22 48·2 | 117·30 |
| 20 | 10 11 39·77 | 5 33 28·2 | 108·23 | 20 | 11 48 20·57 | 3 34 32·0 | 117·28 |
| 21 | 10 13 37·90 | 5 22 38·8 | 108·60 | 21 | 11 50 25·65 | 3 46 15·7 | 117·27 |
| 22 | 10 15 36·09 | 5 11 47·2 | 108·93 | 22 | 11 52 30·97 | 3 57 59·3 | 117·23 |
| 23 | 10 17 34·35 | 5 0 53·6 | 109·30 | 23 | 11 54 36·52 | 4 9 42·7 | 117·18 |
| 24 | 10 19 32·68 | N. 4 49 57·8 | | 24 | 11 56 42·31 | S.4 21 25·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 56 42 ·31 | S. 4 21 25 ·8 | 117 ·13 |
| 1 | 11 58 48 ·35 | 4 33 8 ·6 | 117 ·08 |
| 2 | 12 0 54 ·63 | 4 44 51 ·1 | 117 ·00 |
| 3 | 12 3 1 ·16 | 4 56 33 ·1 | 116 ·92 |
| 4 | 12 5 7 ·95 | 5 8 14 ·6 | 116 ·82 |
| 5 | 12 7 15 ·00 | 5 19 55 ·5 | 116 ·72 |
| 6 | 12 9 22 ·31 | 5 31 35 ·8 | 116 ·60 |
| 7 | 12 11 29 ·88 | 5 43 15 ·4 | 116 ·47 |
| 8 | 12 13 37 ·73 | 5 54 54 ·2 | 116 ·33 |
| 9 | 12 15 45 ·84 | 6 6 32 ·2 | 116 ·18 |
| 10 | 12 17 54 ·23 | 6 18 9 ·3 | 116 ·00 |
| 11 | 12 20 2 ·90 | 6 29 45 ·3 | 115 ·85 |
| 12 | 12 22 11 ·85 | 6 41 20 ·4 | 115 ·65 |
| 13 | 12 24 21 ·09 | 6 52 54 ·3 | 115 ·47 |
| 14 | 12 26 30 ·61 | 7 4 27 ·1 | 115 ·23 |
| 15 | 12 28 40 ·43 | 7 15 58 ·5 | 115 ·03 |
| 16 | 12 30 50 ·54 | 7 27 28 ·7 | 114 ·78 |
| 17 | 12 33 0 ·95 | 7 38 57 ·4 | 114 ·53 |
| 18 | 12 35 11 ·66 | 7 50 24 ·6 | 114 ·28 |
| 19 | 12 37 22 ·68 | 8 1 50 ·3 | 114 ·02 |
| 20 | 12 39 34 ·00 | 8 13 14 ·4 | 113 ·72 |
| 21 | 12 41 45 ·63 | 8 24 36 ·7 | 113 ·43 |
| 22 | 12 43 57 ·58 | 8 35 57 ·3 | 113 ·12 |
| 23 | 12 46 9 ·84 | S. 8 47 16 ·0 | 112 ·78 |
| | *SUNDAY* 18. | | |
| 0 | 12 48 22 ·42 | S. 8 58 32 ·7 | 112 ·45 |
| 1 | 12 50 35 ·32 | 9 9 47 ·4 | 112 ·12 |
| 2 | 12 52 48 ·55 | 9 21 0 ·1 | 111 ·73 |
| 3 | 12 55 2 ·10 | 9 32 10 ·5 | 111 ·37 |
| 4 | 12 57 15 ·99 | 9 43 18 ·7 | 110 ·97 |
| 5 | 12 59 30 ·21 | 9 54 24 ·5 | 110 ·58 |
| 6 | 13 1 44 ·76 | 10 5 28 ·0 | 110 ·15 |
| 7 | 13 3 59 ·65 | 10 16 28 ·9 | 109 ·72 |
| 8 | 13 6 14 ·88 | 10 27 27 ·2 | 109 ·27 |
| 9 | 13 8 30 ·45 | 10 38 22 ·8 | 108 ·80 |
| 10 | 13 10 46 ·36 | 10 49 15 ·6 | 108 ·35 |
| 11 | 13 13 2 ·62 | 11 0 5 ·7 | 107 ·83 |
| 12 | 13 15 19 ·23 | 11 10 52 ·7 | 107 ·35 |
| 13 | 13 17 36 ·19 | 11 21 36 ·8 | 106 ·82 |
| 14 | 13 19 53 ·50 | 11 32 17 ·7 | 106 ·28 |
| 15 | 13 22 11 ·17 | 11 42 55 ·4 | 105 ·75 |
| 16 | 13 24 29 ·19 | 11 53 29 ·9 | 105 ·17 |
| 17 | 13 26 47 ·57 | 12 4 0 ·9 | 104 ·60 |
| 18 | 13 29 6 ·32 | 12 14 28 ·5 | 104 ·02 |
| 19 | 13 31 25 ·42 | 12 24 52 ·6 | 103 ·38 |
| 20 | 13 33 44 ·88 | 12 35 12 ·9 | 102 ·78 |
| 21 | 13 36 4 ·71 | 12 45 29 ·6 | 102 ·13 |
| 22 | 13 38 24 ·90 | 12 55 42 ·4 | 101 ·48 |
| 23 | 13 40 45 ·46 | 13 5 51 ·3 | 100 ·82 |
| 24 | 13 43 6 ·39 | S. 13 15 56 ·2 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 43 6 ·39 | S. 13 15 56 ·2 | 100 ·13 |
| 1 | 13 45 27 ·69 | 13 25 57 ·0 | 99 ·43 |
| 2 | 13 47 49 ·35 | 13 35 53 ·6 | 98 ·72 |
| 3 | 13 50 11 ·38 | 13 45 45 ·9 | 97 ·97 |
| 4 | 13 52 33 ·79 | 13 55 33 ·7 | 97 ·23 |
| 5 | 13 54 56 ·56 | 14 5 17 ·1 | 96 ·48 |
| 6 | 13 57 19 ·71 | 14 14 56 ·0 | 95 ·68 |
| 7 | 13 59 43 ·23 | 14 24 30 ·1 | 94 ·90 |
| 8 | 14 2 7 ·11 | 14 33 59 ·5 | 94 ·08 |
| 9 | 14 4 31 ·37 | 14 43 24 ·0 | 93 ·27 |
| 10 | 14 6 56 ·00 | 14 52 43 ·6 | 92 ·42 |
| 11 | 14 9 21 ·00 | 15 1 58 ·1 | 91 ·57 |
| 12 | 14 11 46 ·37 | 15 11 7 ·5 | 90 ·68 |
| 13 | 14 14 12 ·11 | 15 20 11 ·6 | 89 ·80 |
| 14 | 14 16 38 ·22 | 15 29 10 ·4 | 88 ·90 |
| 15 | 14 19 4 ·70 | 15 38 3 ·8 | 87 ·97 |
| 16 | 14 21 31 ·55 | 15 46 51 ·6 | 87 ·03 |
| 17 | 14 23 58 ·76 | 15 55 33 ·8 | 86 ·08 |
| 18 | 14 26 26 ·34 | 16 4 10 ·3 | 85 ·12 |
| 19 | 14 28 54 ·28 | 16 12 41 ·0 | 84 ·12 |
| 20 | 14 31 22 ·58 | 16 21 5 ·7 | 83 ·13 |
| 21 | 14 33 51 ·25 | 16 29 24 ·5 | 82 ·12 |
| 22 | 14 36 20 ·27 | 16 37 37 ·2 | 81 ·08 |
| 23 | 14 38 49 ·65 | S. 16 45 43 ·7 | 80 ·05 |
| | *TUESDAY* 20. | | |
| 0 | 14 41 19 ·37 | S. 16 53 44 ·0 | 78 ·98 |
| 1 | 14 43 49 ·46 | 17 1 37 ·9 | 77 ·90 |
| 2 | 14 46 19 ·89 | 17 9 25 ·3 | 76 ·82 |
| 3 | 14 48 50 ·68 | 17 17 6 ·2 | 75 ·72 |
| 4 | 14 51 21 ·81 | 17 24 40 ·5 | 74 ·58 |
| 5 | 14 53 53 ·27 | 17 32 8 ·0 | 73 ·45 |
| 6 | 14 56 25 ·08 | 17 39 28 ·7 | 72 ·30 |
| 7 | 14 58 57 ·22 | 17 46 42 ·5 | 71 ·13 |
| 8 | 15 1 29 ·69 | 17 53 49 ·3 | 69 ·95 |
| 9 | 15 4 2 ·49 | 18 0 49 ·0 | 68 ·77 |
| 10 | 15 6 35 ·62 | 18 7 41 ·6 | 67 ·55 |
| 11 | 15 9 9 ·06 | 18 14 26 ·9 | 66 ·33 |
| 12 | 15 11 42 ·82 | 18 21 4 ·9 | 65 ·10 |
| 13 | 15 14 16 ·90 | 18 27 35 ·5 | 63 ·85 |
| 14 | 15 16 51 ·28 | 18 33 58 ·6 | 62 ·57 |
| 15 | 15 19 25 ·96 | 18 40 14 ·0 | 61 ·32 |
| 16 | 15 22 0 ·95 | 18 46 21 ·9 | 60 ·02 |
| 17 | 15 24 36 ·23 | 18 52 22 ·0 | 58 ·70 |
| 18 | 15 27 11 ·80 | 18 58 14 ·2 | 57 ·40 |
| 19 | 15 29 47 ·65 | 19 3 58 ·6 | 56 ·05 |
| 20 | 15 32 23 ·77 | 19 9 34 ·9 | 54 ·73 |
| 21 | 15 35 0 ·17 | 19 15 3 ·3 | 53 ·37 |
| 22 | 15 37 36 ·84 | 19 20 23 ·5 | 52 ·00 |
| 23 | 15 40 13 ·77 | 19 25 35 ·5 | 50 ·63 |
| 24 | 15 42 50 ·96 | S. 19 30 39 ·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *WEDNESDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 42 50·96 | S. 19 30 39·3 | 49·23 |
| 1 | 15 45 28·40 | 19 35 34·7 | 47·83 |
| 2 | 15 48 6·08 | 19 40 21·7 | 46·43 |
| 3 | 15 50 43·99 | 19 45 0·3 | 45·00 |
| 4 | 15 53 22·14 | 19 49 30·3 | 43·57 |
| 5 | 15 56 0·51 | 19 53 51·7 | 42·13 |
| 6 | 15 58 39·10 | 19 58 4·5 | 40·68 |
| 7 | 16 1 17·89 | 20 2 8·6 | 39·22 |
| 8 | 16 3 56·89 | 20 6 3·9 | 37·75 |
| 9 | 16 6 36·09 | 20 9 50·4 | 36·28 |
| 10 | 16 9 15·48 | 20 13 28·1 | 34·78 |
| 11 | 16 11 55·05 | 20 16 56·8 | 33·30 |
| 12 | 16 14 34·79 | 20 20 16·6 | 31·80 |
| 13 | 16 17 14·70 | 20 23 27·4 | 30·28 |
| 14 | 16 19 54·77 | 20 26 29·1 | 28·77 |
| 15 | 16 22 34·99 | 20 29 21·7 | 27·23 |
| 16 | 16 25 15·35 | 20 32 5·1 | 25·72 |
| 17 | 16 27 55·85 | 20 34 39·4 | 24·18 |
| 18 | 16 30 36·48 | 20 37 4·5 | 22·63 |
| 19 | 16 33 17·22 | 20 39 20·3 | 21·10 |
| 20 | 16 35 58·08 | 20 41 26·9 | 19·55 |
| 21 | 16 38 39·04 | 20 43 24·2 | 17·98 |
| 22 | 16 41 20·09 | 20 45 12·1 | 16·42 |
| 23 | 16 44 1·24 | S. 20 46 50·6 | 14·87 |
| | *THURSDAY* 22. | | |
| 0 | 16 46 42·45 | S. 20 48 19·8 | 13·30 |
| 1 | 16 49 23·74 | 20 49 39·6 | 11·72 |
| 2 | 16 52 5·09 | 20 50 49·9 | 10·15 |
| 3 | 16 54 46·49 | 20 51 50·8 | 8·57 |
| 4 | 16 57 27·94 | 20 52 42·2 | 7·00 |
| 5 | 17 0 9·42 | 20 53 24·2 | 5·42 |
| 6 | 17 2 50·92 | 20 53 56·7 | 3·83 |
| 7 | 17 5 32·44 | 20 54 19·7 | 2·27 |
| 8 | 17 8 13·98 | 20 54 33·3 | 0·67 |
| 9 | 17 10 55·51 | 20 54 37·3 | 0·90 |
| 10 | 17 13 37·03 | 20 54 31·9 | 2·48 |
| 11 | 17 16 18·54 | 20 54 17·0 | 4·07 |
| 12 | 17 19 0·03 | 20 53 52·6 | 5·65 |
| 13 | 17 21 41·48 | 20 53 18·7 | 7·22 |
| 14 | 17 24 22·89 | 20 52 35·4 | 8·80 |
| 15 | 17 27 4·24 | 20 51 42·6 | 10·37 |
| 16 | 17 29 45·54 | 20 50 40·4 | 11·93 |
| 17 | 17 32 26·77 | 20 49 28·8 | 13·50 |
| 18 | 17 35 7·92 | 20 48 7·8 | 15·07 |
| 19 | 17 37 48·99 | 20 46 37·4 | 16·63 |
| 20 | 17 40 29·96 | 20 44 57·6 | 18·18 |
| 21 | 17 43 10·83 | 20 43 8·5 | 19·72 |
| 22 | 17 45 51·59 | 20 41 10·2 | 21·28 |
| 23 | 17 48 32·24 | 20 39 2·5 | 22·82 |
| 24 | 17 51 12·76 | S. 20 36 45·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *FRIDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 51 12·76 | S. 20 36 45·6 | 24·35 |
| 1 | 17 53 53·15 | 20 34 19·5 | 25·88 |
| 2 | 17 56 33·39 | 20 31 44·2 | 27·40 |
| 3 | 17 59 13·49 | 20 28 59·8 | 28·92 |
| 4 | 18 1 53·43 | 20 26 6·3 | 30·43 |
| 5 | 18 4 33·21 | 20 23 3·7 | 31·92 |
| 6 | 18 7 12·82 | 20 19 52·2 | 33·43 |
| 7 | 18 9 52·25 | 20 16 31·6 | 34·90 |
| 8 | 18 12 31·50 | 20 13 2·2 | 36·38 |
| 9 | 18 15 10·55 | 20 9 23·9 | 37·85 |
| 10 | 18 17 49·40 | 20 5 36·8 | 39·30 |
| 11 | 18 20 28·05 | 20 1 41·0 | 40·77 |
| 12 | 18 23 6·48 | 19 57 36·4 | 42·20 |
| 13 | 18 25 44·69 | 19 53 23·2 | 43·63 |
| 14 | 18 28 22·68 | 19 49 1·4 | 45·05 |
| 15 | 18 31 0·44 | 19 44 31·1 | 46·47 |
| 16 | 18 33 37·96 | 19 39 52·3 | 47·87 |
| 17 | 18 36 15·23 | 19 35 5·1 | 49·25 |
| 18 | 18 38 52·26 | 19 30 9·6 | 50·63 |
| 19 | 18 41 29·03 | 19 25 5·8 | 51·98 |
| 20 | 18 44 5·54 | 19 19 53·9 | 53·37 |
| 21 | 18 46 41·78 | 19 14 33·7 | 54·68 |
| 22 | 18 49 17·76 | 19 9 5·6 | 56·03 |
| 23 | 18 51 53·45 | S. 19 3 29·4 | 57·35 |
| | *SATURDAY* 24. | | |
| 0 | 18 54 28·86 | S. 18 57 45·3 | 58·65 |
| 1 | 18 57 3·99 | 18 51 53·4 | 59·95 |
| 2 | 18 59 38·82 | 18 45 53·7 | 61·23 |
| 3 | 19 2 13·37 | 18 39 46·3 | 62·50 |
| 4 | 19 4 47·61 | 18 33 31·3 | 63·77 |
| 5 | 19 7 21·55 | 18 27 8·7 | 65·00 |
| 6 | 19 9 55·18 | 18 20 38·7 | 66·22 |
| 7 | 19 12 28·51 | 18 14 1·4 | 67·45 |
| 8 | 19 15 1·52 | 18 7 16·7 | 68·65 |
| 9 | 19 17 34·21 | 18 0 24·8 | 69·82 |
| 10 | 19 20 6·58 | 17 53 25·9 | 71·02 |
| 11 | 19 22 38·63 | 17 46 19·8 | 72·17 |
| 12 | 19 25 10·35 | 17 39 6·8 | 73·32 |
| 13 | 19 27 41·74 | 17 31 46·9 | 74·43 |
| 14 | 19 30 12·80 | 17 24 20·3 | 75·55 |
| 15 | 19 32 43·52 | 17 16 47·0 | 76·67 |
| 16 | 19 35 13·90 | 17 9 7·0 | 77·75 |
| 17 | 19 37 43·95 | 17 1 20·5 | 78·82 |
| 18 | 19 40 13·65 | 16 53 27·6 | 79·88 |
| 19 | 19 42 43·01 | 16 45 28·3 | 80·92 |
| 20 | 19 45 12·03 | 16 37 22·8 | 81·95 |
| 21 | 19 47 40·70 | 16 29 11·1 | 82·97 |
| 22 | 19 50 9·02 | 16 20 53·3 | 83·97 |
| 23 | 19 52 36·99 | 16 12 29·5 | 84·95 |
| 24 | 19 55 4·61 | S. 16 3 59·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 19 55 4·61 | S. 16 3 59·8 | 85·92 |
| 1 | 19 57 31·88 | 15 55 24·3 | 86·87 |
| 2 | 19 59 58·80 | 15 46 43·1 | 87·82 |
| 3 | 20 2 25·37 | 15 37 56·2 | 88·73 |
| 4 | 20 4 51·58 | 15 29 3·8 | 89·65 |
| 5 | 20 7 17·44 | 15 20 5·9 | 90·53 |
| 6 | 20 9 42·95 | 15 11 2·7 | 91·43 |
| 7 | 20 12 8·10 | 15 1 54·1 | 92·28 |
| 8 | 20 14 32·90 | 14 52 40·4 | 93·13 |
| 9 | 20 16 57·35 | 14 43 21·6 | 93·97 |
| 10 | 20 19 21·45 | 14 33 57·8 | 94·78 |
| 11 | 20 21 45·19 | 14 24 29·1 | 95·60 |
| 12 | 20 24 8·57 | 14 14 55·5 | 96·38 |
| 13 | 20 26 31·60 | 14 5 17·2 | 97·17 |
| 14 | 20 28 54·29 | 13 55 34·2 | 97·92 |
| 15 | 20 31 16·62 | 13 45 46·7 | 98·65 |
| 16 | 20 33 38·60 | 13 35 54·8 | 99·40 |
| 17 | 20 36 0·24 | 13 25 58·4 | 100·12 |
| 18 | 20 38 21·52 | 13 15 57·7 | 100·80 |
| 19 | 20 40 42·47 | 13 5 52·9 | 101·50 |
| 20 | 20 43 3·07 | 12 55 43·9 | 102·17 |
| 21 | 20 45 23·32 | 12 45 30·9 | 102·82 |
| 22 | 20 47 43·23 | 12 35 14·0 | 103·47 |
| 23 | 20 50 2·81 | S. 12 24 53·2 | 104·10 |
| | *MONDAY* 26. | | |
| 0 | 20 52 22·04 | S. 12 14 28·6 | 104·70 |
| 1 | 20 54 40·94 | 12 4 0·4 | 105·32 |
| 2 | 20 56 59·50 | 11 53 28·5 | 105·88 |
| 3 | 20 59 17·74 | 11 42 53·2 | 106·45 |
| 4 | 21 1 35·64 | 11 32 14·5 | 107·02 |
| 5 | 21 3 53·21 | 11 21 32·4 | 107·57 |
| 6 | 21 6 10·46 | 11 10 47·0 | 108·08 |
| 7 | 21 8 27·38 | 10 59 58·5 | 108·60 |
| 8 | 21 10 43·99 | 10 49 6·9 | 109·10 |
| 9 | 21 13 0·27 | 10 38 12·3 | 109·58 |
| 10 | 21 15 16·24 | 10 27 14·8 | 110·07 |
| 11 | 21 17 31·89 | 10 16 14·4 | 110·52 |
| 12 | 21 19 47·23 | 10 5 11·3 | 110·97 |
| 13 | 21 22 2·26 | 9 54 5·5 | 111·40 |
| 14 | 21 24 16·99 | 9 42 57·1 | 111·82 |
| 15 | 21 26 31·42 | 9 31 46·2 | 112·23 |
| 16 | 21 28 45·54 | 9 20 32·8 | 112·62 |
| 17 | 21 30 59·37 | 9 9 17·1 | 113·00 |
| 18 | 21 33 12·90 | 8 57 59·1 | 113·37 |
| 19 | 21 35 26·15 | 8 46 38·9 | 113·73 |
| 20 | 21 37 39·11 | 8 35 16·5 | 114·07 |
| 21 | 21 39 51·78 | 8 23 52·1 | 114·40 |
| 22 | 21 42 4·17 | 8 12 25·7 | 114·72 |
| 23 | 21 44 16·28 | 8 0 57·4 | 115·02 |
| 24 | 21 46 28·12 | S. 7 49 27·3 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *TUESDAY* 27. | |
| | h m s | ° ′ ″ |
| 0 | 21 46 28·12 | S. 7 49 27·3 |
| 1 | 21 48 39·68 | 7 37 55·4 |
| 2 | 21 50 50·98 | 7 26 21·8 |
| 3 | 21 53 2·01 | 7 14 46·6 |
| 4 | 21 55 12·78 | 7 3 9·8 |
| 5 | 21 57 23·28 | 6 51 31·6 |
| 6 | 21 59 33·53 | 6 39 52·0 |
| 7 | 22 1 43·54 | 6 28 11·0 |
| 8 | 22 3 53·29 | 6 16 28·8 |
| 9 | 22 6 2·79 | 6 4 45·4 |
| 10 | 22 8 12·06 | 5 53 0·9 |
| 11 | 22 10 21·08 | 5 41 15·4 |
| 12 | 22 12 29·87 | 5 29 28·8 |
| 13 | 22 14 38·43 | 5 17 41·3 |
| 14 | 22 16 46·77 | 5 5 53·0 |
| 15 | 22 18 54·88 | 4 54 3·9 |
| 16 | 22 21 2·77 | 4 42 14·1 |
| 17 | 22 23 10·44 | 4 30 23·7 |
| 18 | 22 25 17·90 | 4 18 32·6 |
| 19 | 22 27 25·15 | 4 6 41·0 |
| 20 | 22 29 32·20 | 3 54 49·0 |
| 21 | 22 31 39·04 | 3 42 56·5 |
| 22 | 22 33 45·69 | 3 31 3·7 |
| 23 | 22 35 52·14 | S. 3 19 10·7 |
| | *WEDNESDAY* 28. | |
| 0 | 22 37 58·40 | S. 3 7 17·4 |
| 1 | 22 40 4·47 | 2 55 24·0 |
| 2 | 22 42 10·37 | 2 43 30·4 |
| 3 | 22 44 16·08 | 2 31 36·8 |
| 4 | 22 46 21·62 | 2 19 43·3 |
| 5 | 22 48 26·98 | 2 7 49·8 |
| 6 | 22 50 32·18 | 1 55 56·5 |
| 7 | 22 52 37·21 | 1 44 3·3 |
| 8 | 22 54 42·08 | 1 32 10·5 |
| 9 | 22 56 46·79 | 1 20 17·9 |
| 10 | 22 58 51·35 | 1 8 25·7 |
| 11 | 23 0 55·75 | 0 56 34·0 |
| 12 | 23 3 0·01 | 0 44 42·7 |
| 13 | 23 5 4·12 | 0 32 52·0 |
| 14 | 23 7 8·10 | 0 21 1·9 |
| 15 | 23 9 11·94 | S. 0 9 12·4 |
| 16 | 23 11 15·65 | N. 0 2 36·4 |
| 17 | 23 13 19·22 | 0 14 24·4 |
| 18 | 23 15 22·67 | 0 26 11·7 |
| 19 | 23 17 26·01 | 0 37 58·0 |
| 20 | 23 19 29·22 | 0 49 43·5 |
| 21 | 23 21 32·32 | 1 1 27·9 |
| 22 | 23 23 35·30 | 1 13 11·4 |
| 23 | 23 25 38·18 | 1 24 53·8 |
| 24 | 23 27 40·96 | N. 1 36 35·1 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| r. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 29. | | |
| | h m s | ° ′ ″ | ″ |
| | 23 27 40 ·96 | N. 1 36 35 ·1 | 116 ·68 |
| | 23 29 43 ·63 | 1 48 15 ·2 | 116 ·48 |
| | 23 31 46 ·21 | 1 59 54 ·1 | 116 ·28 |
| | 23 33 48 ·70 | 2 11 31 ·8 | 116 ·05 |
| | 23 35 51 ·09 | 2 23 8 ·1 | 115 ·83 |
| | 23 37 53 ·40 | 2 34 43 ·1 | 115 ·60 |
| | 23 39 55 ·63 | 2 46 16 ·7 | 115 ·35 |
| | 23 41 57 ·78 | 2 57 48 ·8 | 115 ·10 |
| | 23 43 59 ·85 | 3 9 19 ·4 | 114 ·83 |
| | 23 46 1 ·84 | 3 20 48 ·4 | 114 ·57 |
| | 23 48 3 ·77 | 3 32 15 ·8 | 114 ·30 |
| | 23 50 5 ·63 | 3 43 41 ·6 | 114 ·02 |
| | 23 52 7 ·41 | 3 55 5 ·7 | 113 ·73 |
| | 23 54 9 ·14 | 4 6 28 ·1 | 113 ·42 |
| | 23 56 10 ·82 | 4 17 48 ·6 | 113 ·12 |
| | 23 58 12 ·44 | 4 29 7 ·3 | 112 ·82 |
| | 0 0 14 ·01 | 4 40 24 ·2 | 112 ·48 |
| | 0 2 15 ·53 | 4 51 39 ·1 | 112 ·15 |
| | 0 4 17 ·01 | 5 2 52 ·0 | 111 ·82 |
| | 0 6 18 ·44 | 5 14 2 ·9 | 111 ·47 |
| | 0 8 19 ·84 | 5 25 11 ·7 | 111 ·12 |
| | 0 10 21 ·20 | 5 36 18 ·4 | 110 ·77 |
| | 0 12 22 ·53 | 5 47 23 ·0 | 110 ·38 |
| | 0 14 23 ·83 | N. 5 58 25 ·3 | 110 ·02 |
| | *FRIDAY* 30. | | |
| | 0 16 25 ·11 | N. 6 9 25 ·4 | 109 ·63 |
| | 0 18 26 ·36 | 6 20 23 ·2 | 109 ·23 |
| | 0 20 27 ·59 | 6 31 18 ·6 | 108 ·83 |
| | 0 22 28 ·81 | 6 42 11 ·6 | 108 ·43 |
| | 0 24 30 ·01 | 6 53 2 ·2 | 108 ·05 |
| | 0 26 31 ·20 | 7 3 50 ·5 | 107 ·60 |
| | 0 28 32 ·37 | 7 14 36 ·1 | 107 ·18 |
| | 0 30 33 ·54 | 7 25 19 ·2 | 106 ·75 |
| | 0 32 34 ·71 | 7 35 59 ·7 | 106 ·30 |
| | 0 34 35 ·87 | 7 46 37 ·5 | 105 ·87 |
| | 0 36 37 ·04 | 7 57 12 ·7 | 105 ·42 |
| | 0 38 38 ·20 | 8 7 45 ·2 | 104 ·93 |
| | 0 40 39 ·38 | 8 18 14 ·8 | 104 ·48 |
| | 0 42 40 ·56 | 8 28 41 ·7 | 104 ·02 |
| | 0 44 41 ·76 | 8 39 5 ·8 | 103 ·55 |
| | 0 46 42 ·96 | 8 49 27 ·1 | 103 ·05 |
| | 0 48 44 ·19 | 8 59 45 ·4 | 102 ·55 |
| | 0 50 45 ·43 | 9 10 0 ·7 | 102 ·05 |
| | 0 52 46 ·69 | 9 20 13 ·0 | 101 ·55 |
| | 0 54 47 ·97 | 9 30 22 ·3 | 101 ·05 |
| | 0 56 49 ·28 | 9 40 28 ·6 | 100 ·50 |
| | 0 58 50 ·61 | 9 50 31 ·6 | 100 ·00 |
| | 1 0 51 ·98 | 10 0 31 ·6 | 99 ·45 |
| | 1 2 53 ·38 | 10 10 28 ·3 | 98 ·92 |
| | 1 4 54 ·81 | N.10 20 21 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec for 10m. |
|---|---|---|---|
| | *SATURDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 4 54 ·81 | N.10 20 21 ·8 | 98 ·37 |
| 1 | 1 6 56 ·28 | 10 30 12 ·0 | 97 ·82 |
| 2 | 1 8 57 ·78 | 10 39 58 ·9 | 97 ·25 |
| 3 | 1 10 59 ·33 | 10 49 42 ·4 | 96 ·68 |
| 4 | 1 13 0 ·92 | 10 59 22 ·5 | 96 ·12 |
| 5 | 1 15 2 ·55 | 11 8 59 ·2 | 95 ·53 |
| 6 | 1 17 4 ·22 | 11 18 32 ·4 | 94 ·95 |
| 7 | 1 19 5 ·95 | 11 28 2 ·1 | 94 ·35 |
| 8 | 1 21 7 ·72 | 11 37 28 ·2 | 93 ·77 |
| 9 | 1 23 9 ·54 | 11 46 50 ·8 | 93 ·15 |
| 10 | 1 25 11 ·42 | 11 56 9 ·7 | 92 ·55 |
| 11 | 1 27 13 ·35 | 12 5 25 ·0 | 91 ·93 |
| 12 | 1 29 15 ·33 | 12 14 36 ·6 | 91 ·32 |
| 13 | 1 31 17 ·37 | 12 23 44 ·5 | 90 ·67 |
| 14 | 1 33 19 ·48 | 12 32 48 ·5 | 90 ·05 |
| 15 | 1 35 21 ·64 | 12 41 48 ·8 | 89 ·40 |
| 16 | 1 37 23 ·87 | 12 50 45 ·2 | 88 ·77 |
| 17 | 1 39 26 ·16 | 12 59 37 ·8 | 88 ·10 |
| 18 | 1 41 28 ·51 | 13 8 26 ·4 | 87 ·45 |
| 19 | 1 43 30 ·93 | 13 17 11 ·1 | 86 ·77 |
| 20 | 1 45 33 ·42 | 13 25 51 ·7 | 86 ·12 |
| 21 | 1 47 35 ·97 | 13 34 28 ·4 | 85 ·43 |
| 22 | 1 49 38 ·60 | 13 43 1 ·0 | 84 ·73 |
| 23 | 1 51 41 ·29 | N.13 51 29 ·4 | 84 ·07 |
| | *SUNDAY, JUNE* 1. | | |
| 0 | 1 53 44 ·05 | N.13 59 53 ·8 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ● New Moon - - - | 5 21 57 ·5 |
| ☽ *First Quarter* - - | 14 2 8 ·5 |
| ○ Full Moon - - - | 21 3 58 ·2 |
| ☾ *Last Quarter* - - | 27 18 25 ·1 |

| | d h |
|---|---|
| ☾ Apogee - - - - - - - - | 10 2 |
| ☾ Perigee - - - - - - - - | 22 7 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Antares | W. | 95 44 36 | 2595 | 97 23 37 | 2604 | 99 2 26 | 2614 | 100 41 1 | 2625 |
| | α Aquilæ | W. | 47 36 45 | 3379 | 48 59 25 | 3350 | 50 22 39 | 3322 | 51 46 25 | 3300 |
| | Mars | W. | 41 16 39 | 2820 | 42 50 41 | 2826 | 44 24 35 | 2832 | 45 58 21 | 2840 |
| | Sun | E. | 58 5 0 | 2904 | 56 32 46 | 2914 | 55 0 45 | 2924 | 53 28 56 | 2935 |
| 2 | α Aquilæ | W. | 58 50 53 | 3222 | 60 16 36 | 3214 | 61 42 29 | 3205 | 63 8 32 | 3199 |
| | Mars | W. | 53 44 43 | 2878 | 55 17 30 | 2887 | 56 50 6 | 2894 | 58 22 32 | 2902 |
| | Sun | E. | 45 53 5 | 2985 | 44 22 33 | 2993 | 42 52 12 | 3003 | 41 22 3 | 3014 |
| 3 | α Aquilæ | W. | 70 20 11 | 3185 | 71 46 38 | 3184 | 73 13 6 | 3186 | 74 39 32 | 3188 |
| | Mars | W. | 66 2 7 | 2944 | 67 33 30 | 2952 | 69 4 43 | 2960 | 70 35 46 | 2969 |
| | Fomalhaut | W. | 44 23 22 | 3807 | 45 38 17 | 3757 | 46 54 4 | 3713 | 48 10 37 | 3674 |
| | α Pegasi | W. | 23 21 21 | 3782 | 24 36 42 | 3668 | 25 54 3 | 3574 | 27 13 6 | 3496 |
| | Sun | E. | 33 54 19 | 3061 | 32 25 22 | 3070 | 30 56 36 | 3079 | 29 28 1 | 3089 |
| 8 | Sun | W. | 23 12 35 | 3387 | 24 35 6 | 3393 | 25 57 31 | 3397 | 27 19 51 | 3402 |
| | Pollux | E. | 40 55 28 | 3220 | 39 29 42 | 3237 | 38 4 17 | 3257 | 36 39 15 | 3279 |
| | Regulus | E. | 76 49 2 | 3043 | 75 19 42 | 3049 | 73 50 30 | 3054 | 72 21 24 | 3060 |
| 9 | Sun | W. | 34 10 7 | 3425 | 35 31 55 | 3428 | 36 53 40 | 3431 | 38 15 21 | 3434 |
| | Pollux | E. | 29 41 12 | 3423 | 28 19 22 | 3463 | 26 58 17 | 3511 | 25 38 5 | 3564 |
| | Regulus | E. | 64 57 29 | 3083 | 63 28 59 | 3087 | 62 0 34 | 3092 | 60 32 14 | 3095 |
| 10 | Sun | W. | 45 3 2 | 3445 | 46 24 28 | 3446 | 47 45 53 | 3447 | 49 7 17 | 3447 |
| | Pollux | E. | 19 15 33 | 4035 | 18 4 28 | 4203 | 16 56 5 | 4415 | 15 50 57 | 4686 |
| | Regulus | E. | 53 11 36 | 3110 | 51 43 39 | 3113 | 50 15 45 | 3115 | 48 47 54 | 3118 |
| | Spica ♍ | E. | 106 55 43 | 3076 | 105 27 4 | 3077 | 103 58 26 | 3078 | 102 29 49 | 3078 |
| 11 | Sun | W. | 55 54 22 | 3442 | 57 15 51 | 3439 | 58 37 23 | 3437 | 59 58 58 | 3434 |
| | Regulus | E. | 41 29 12 | 3125 | 40 1 33 | 3126 | 38 33 55 | 3127 | 37 6 19 | 3129 |
| | Spica ♍ | E. | 95 6 43 | 3074 | 93 38 1 | 3072 | 92 9 17 | 3070 | 90 40 31 | 3067 |
| 12 | Sun | W. | 66 47 54 | 3412 | 68 9 57 | 3406 | 69 32 7 | 3400 | 70 54 24 | 3393 |
| | Pollux | W. | 13 27 41 | 5229 | 14 21 41 | 4809 | 15 21 10 | 4492 | 16 25 9 | 4246 |
| | Regulus | E. | 29 48 50 | 3140 | 28 21 29 | 3144 | 26 54 13 | 3150 | 25 27 4 | 3158 |
| | Spica ♍ | E. | 83 15 35 | 3047 | 81 46 20 | 3041 | 80 16 58 | 3036 | 78 47 30 | 3029 |
| 13 | Sun | W. | 77 47 58 | 3351 | 79 11 11 | 3342 | 80 34 34 | 3331 | 81 58 10 | 3321 |
| | Pollux | W. | 22 30 3 | 3577 | 23 49 3 | 3502 | 25 9 25 | 3437 | 26 31 0 | 3380 |
| | Spica ♍ | E. | 71 17 58 | 2991 | 69 47 35 | 2982 | 68 17 0 | 2974 | 66 46 14 | 2963 |
| | Antares | E. | 116 39 34 | 3017 | 115 9 42 | 3007 | 113 39 38 | 2998 | 112 9 22 | 2987 |
| 14 | Sun | W. | 88 59 22 | 3260 | 90 24 20 | 3247 | 91 49 34 | 3233 | 93 15 4 | 3219 |
| | Pollux | W. | 33 33 0 | 3173 | 34 59 41 | 3141 | 36 27 1 | 3111 | 37 54 57 | 3082 |
| | Spica ♍ | E. | 59 9 6 | 2908 | 57 36 57 | 2896 | 56 4 33 | 2883 | 54 31 52 | 2870 |
| | Antares | E. | 104 34 37 | 2930 | 103 2 56 | 2916 | 101 30 58 | 2904 | 99 58 44 | 2891 |
| 15 | Sun | W. | 100 27 0 | 3142 | 101 54 19 | 3124 | 103 21 59 | 3107 | 104 50 0 | 3090 |
| | Pollux | W. | 45 22 56 | 2956 | 46 54 4 | 2932 | 48 25 42 | 2909 | 49 57 49 | 2887 |
| | Regulus | W. | 9 13 34 | 3713 | 10 30 7 | 3461 | 11 51 15 | 3287 | 13 15 42 | 3161 |
| | Spica ♍ | E. | 46 44 5 | 2798 | 45 9 35 | 2783 | 43 34 45 | 2768 | 41 59 35 | 2751 |
| | Antares | E. | 92 13 8 | 2818 | 90 39 4 | 2803 | 89 4 40 | 2788 | 87 29 56 | 2771 |
| 16 | Sun | W. | 112 15 29 | 2999 | 113 45 43 | 2980 | 115 16 21 | 2961 | 116 47 23 | 2942 |
| | Pollux | W. | 57 45 30 | 2778 | 59 20 27 | 2757 | 60 55 52 | 2736 | 62 31 44 | 2714 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| Antares | W. | 102 19 22 | 2634 | 103 57 31 | 2643 | 105 35 27 | 2653 | 107 13 10 | 2663 |
| α Aquilæ | W. | 53 10 37 | 3279 | 54 35 13 | 3261 | 56 0 10 | 3247 | 57 25 24 | 3234 |
| Mars | W. | 47 31 57 | 2848 | 49 5 23 | 2855 | 50 38 40 | 2863 | 52 11 46 | 2870 |
| Sun | E. | 51 57 21 | 2944 | 50 25 58 | 2954 | 48 54 48 | 2964 | 47 23 50 | 2974 |
| α Aquilæ | W. | 64 34 43 | 3194 | 66 0 59 | 3190 | 67 27 20 | 3187 | 68 53 45 | 3186 |
| Mars | W. | 59 54 48 | 2911 | 61 26 53 | 2919 | 62 58 48 | 2927 | 64 30 33 | 2935 |
| Sun | E. | 39 52 7 | 3022 | 38 22 22 | 3033 | 36 52 50 | 3042 | 35 23 29 | 3051 |
| α Aquilæ | W. | 76 5 56 | 3189 | 77 32 18 | 3193 | 78 58 35 | 3196 | 80 24 49 | 3202 |
| Mars | W. | 72 6 38 | 2978 | 73 37 19 | 2985 | 75 7 51 | 2994 | 76 38 11 | 3002 |
| Fomalhaut | W. | 49 27 52 | 3638 | 50 45 45 | 3608 | 52 4 11 | 3581 | 53 23 6 | 3555 |
| α Pegasi | W. | 28 33 35 | 3431 | 29 55 17 | 3377 | 31 18 0 | 3331 | 32 41 36 | 3294 |
| Sun | E. | 27 59 38 | 3099 | 26 31 27 | 3107 | 25 3 26 | 3118 | 23 35 38 | 3126 |
| Sun | W. | 28 42 5 | 3408 | 30 4 13 | 3412 | 31 26 16 | 3416 | 32 48 14 | 3421 |
| Pollux | E. | 35 14 39 | 3302 | 33 50 30 | 3327 | 32 26 50 | 3356 | 31 3 43 | 3387 |
| Regulus | E. | 70 52 25 | 3065 | 69 23 32 | 3070 | 67 54 46 | 3074 | 66 26 5 | 3078 |
| Sun | W. | 39 36 59 | 3438 | 40 58 33 | 3439 | 42 20 5 | 3442 | 43 41 34 | 3443 |
| Pollux | E. | 24 18 51 | 3628 | 23 0 47 | 3702 | 21 44 2 | 3793 | 20 28 52 | 3901 |
| Regulus | E. | 59 3 58 | 3099 | 57 35 47 | 3102 | 56 7 40 | 3105 | 54 39 36 | 3108 |
| Sun | W. | 50 28 41 | 3447 | 51 50 5 | 3447 | 53 11 29 | 3445 | 54 32 55 | 3444 |
| Pollux | E. | 14 49 46 | 5042 | 13 53 24 | 5521 | 13 2 55 | 6176 | 12 19 30 | 7108 |
| Regulus | E. | 47 20 6 | 3119 | 45 52 19 | 3121 | 44 24 35 | 3122 | 42 56 52 | 3124 |
| Spica ♍ | E. | 101 1 13 | 3078 | 99 32 37 | 3078 | 98 4 0 | 3077 | 96 35 22 | 3076 |
| Sun | W. | 61 20 36 | 3431 | 62 42 18 | 3426 | 64 4 5 | 3422 | 65 25 56 | 3416 |
| Regulus | E. | 35 38 45 | 3131 | 34 11 13 | 3133 | 32 43 43 | 3134 | 31 16 15 | 3136 |
| Spica ♍ | E. | 89 11 41 | 3063 | 87 42 46 | 3060 | 86 13 48 | 3056 | 84 44 44 | 3052 |
| Sun | W. | 72 16 49 | 3385 | 73 39 23 | 3378 | 75 2 5 | 3369 | 76 24 57 | 3361 |
| Pollux | W. | 17 32 52 | 4051 | 18 43 41 | 3897 | 19 57 4 | 3769 | 21 12 38 | 3664 |
| Regulus | E. | 24 0 4 | 3166 | 22 33 14 | 3179 | 21 6 40 | 3195 | 19 40 25 | 3216 |
| Spica ♍ | E. | 77 17 53 | 3022 | 75 48 8 | 3016 | 74 18 15 | 3008 | 72 48 12 | 2999 |
| Sun | W. | 83 21 57 | 3309 | 84 45 58 | 3298 | 86 10 12 | 3286 | 87 34 40 | 3274 |
| Pollux | W. | 27 53 39 | 3331 | 29 17 15 | 3285 | 30 41 44 | 3245 | 32 7 0 | 3208 |
| Spica ♍ | E. | 65 15 15 | 2953 | 63 44 3 | 2943 | 62 12 38 | 2932 | 60 41 0 | 2920 |
| Antares | E. | 110 38 53 | 2976 | 109 8 10 | 2966 | 107 37 14 | 2954 | 106 6 3 | 2942 |
| Sun | W. | 94 40 51 | 3204 | 96 6 56 | 3188 | 97 33 19 | 3173 | 99 0 0 | 3158 |
| Pollux | W. | 39 23 29 | 3056 | 40 52 33 | 3030 | 42 22 9 | 3004 | 43 52 17 | 2979 |
| Spica ♍ | E. | 52 58 54 | 2857 | 51 25 40 | 2842 | 49 52 7 | 2828 | 48 18 15 | 2814 |
| Antares | E. | 98 26 13 | 2877 | 96 53 24 | 2863 | 95 20 18 | 2849 | 93 46 53 | 2833 |
| Sun | W. | 106 18 22 | 3073 | 107 47 5 | 3055 | 109 16 10 | 3036 | 110 45 38 | 3018 |
| Pollux | W. | 51 30 24 | 2865 | 53 3 28 | 2842 | 54 37 1 | 2821 | 56 11 2 | 2800 |
| Regulus | W. | 14 42 37 | 3066 | 16 11 28 | 2991 | 17 41 52 | 2930 | 19 13 33 | 2879 |
| Spica ♍ | E. | 40 24 3 | 2735 | 38 48 10 | 2719 | 37 11 56 | 2702 | 35 35 19 | 2685 |
| Antares | E. | 85 54 50 | 2755 | 84 19 23 | 2739 | 82 43 35 | 2722 | 81 7 24 | 2705 |
| Sun | W. | 118 18 49 | 2922 | 119 50 40 | 2904 | 121 22 56 | 2883 | 122 55 37 | 2863 |
| Pollux | W. | 64 8 5 | 2694 | 65 44 53 | 2673 | 67 22 9 | 2652 | 68 59 53 | 2632 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 16 | Regulus | W. | 20 46 19 | 2835 | 22 20 2 | 2795 | 23 54 37 | 2760 | 25 29 58 |
| | Spica ♍ | E. | 33 58 19 | 2668 | 32 20 56 | 2650 | 30 43 9 | 2633 | 29 4 59 |
| | Antares | E. | 79 30 51 | 2688 | 77 53 55 | 2671 | 76 16 36 | 2653 | 74 38 53 |
| 17 | Sun | W. | 124 28 43 | 2842 | 126 2 16 | 2823 | 127 36 14 | 2803 | 129 10 38 |
| | Pollux | W. | 70 38 5 | 2612 | 72 16 44 | 2591 | 73 55 51 | 2572 | 75 35 25 |
| | Regulus | W. | 33 36 41 | 2591 | 35 15 49 | 2567 | 36 55 30 | 2543 | 38 35 43 |
| | Antares | E. | 66 24 18 | 2547 | 64 44 10 | 2529 | 63 3 37 | 2512 | 61 22 40 |
| | α Aquilæ | E. | 116 57 39 | 3045 | 115 28 22 | 3011 | 113 58 23 | 2980 | 112 27 46 |
| 18 | Pollux | W. | 84 0 4 | 2456 | 85 42 19 | 2437 | 87 25 1 | 2419 | 89 8 8 |
| | Regulus | W. | 47 4 30 | 2414 | 48 47 45 | 2394 | 50 31 28 | 2374 | 52 15 40 |
| | Antares | E. | 52 51 44 | 2408 | 51 8 21 | 2391 | 49 24 34 | 2376 | 47 40 25 |
| | α Aquilæ | E. | 104 45 24 | 2813 | 103 11 13 | 2789 | 101 36 31 | 2766 | 100 1 18 |
| | Mars | E. | 116 27 58 | 2580 | 114 48 36 | 2560 | 113 8 46 | 2541 | 111 28 30 |
| 19 | Pollux | W. | 97 49 49 | 2320 | 99 35 19 | 2305 | 101 21 11 | 2292 | 103 7 23 |
| | Regulus | W. | 61 3 22 | 2266 | 62 50 12 | 2249 | 64 37 26 | 2233 | 66 25 4 |
| | Antares | E. | 38 54 23 | 2293 | 37 8 13 | 2283 | 35 21 48 | 2273 | 33 35 9 |
| | α Aquilæ | E. | 91 58 22 | 2649 | 90 20 33 | 2632 | 88 42 22 | 2618 | 87 3 52 |
| | Mars | E. | 103 0 39 | 2432 | 101 17 50 | 2415 | 99 34 37 | 2399 | 97 51 1 |
| | Saturn | E. | 110 7 47 | 2271 | 108 21 5 | 2254 | 106 33 58 | 2239 | 104 46 28 |
| 20 | Regulus | W. | 75 28 47 | 2149 | 77 18 32 | 2136 | 79 8 36 | 2125 | 80 58 57 |
| | Spica ♍ | W. | 21 28 6 | 2129 | 23 18 21 | 2117 | 25 8 54 | 2105 | 26 59 45 |
| | α Aquilæ | E. | 78 47 18 | 2557 | 77 7 24 | 2551 | 75 27 22 | 2548 | 73 47 15 |
| | Mars | E. | 89 7 39 | 2314 | 87 22 0 | 2302 | 85 36 3 | 2290 | 83 49 49 |
| | Saturn | E. | 95 43 31 | 2155 | 93 53 55 | 2143 | 92 4 1 | 2132 | 90 13 51 |
| | Fomalhaut | E. | 106 48 47 | 2646 | 105 10 55 | 2627 | 103 32 36 | 2607 | 101 53 51 |
| 21 | Regulus | W. | 90 14 30 | 2071 | 92 6 14 | 2064 | 93 58 8 | 2058 | 95 50 12 |
| | Spica ♍ | W. | 36 17 52 | 2050 | 38 10 8 | 2044 | 40 2 34 | 2037 | 41 55 10 |
| | α Aquilæ | E. | 65 26 47 | 2564 | 63 47 2 | 2575 | 62 7 32 | 2588 | 60 28 20 |
| | Mars | E. | 74 55 8 | 2238 | 73 7 37 | 2231 | 71 19 56 | 2227 | 69 32 9 |
| | Saturn | E. | 80 59 14 | 2079 | 79 7 42 | 2072 | 77 16 0 | 2067 | 75 24 10 |
| | Fomalhaut | E. | 93 34 52 | 2528 | 91 54 17 | 2520 | 90 13 31 | 2514 | 88 32 37 |
| 22 | Regulus | W. | 105 12 2 | 2040 | 107 4 34 | 2040 | 108 57 6 | 2040 | 110 49 38 |
| | Spica ♍ | W. | 51 19 47 | 2017 | 53 12 55 | 2016 | 55 6 4 | 2016 | 56 59 13 |
| | α Aquilæ | E. | 52 19 7 | 2733 | 50 43 11 | 2772 | 49 8 7 | 2818 | 47 34 2 |
| | Mars | E. | 60 32 0 | 2214 | 58 43 53 | 2216 | 56 55 49 | 2218 | 55 7 48 |
| | Saturn | E. | 66 3 32 | 2050 | 64 11 16 | 2050 | 62 19 0 | 2051 | 60 26 45 |
| | Fomalhaut | E. | 80 7 22 | 2513 | 78 26 27 | 2519 | 76 45 40 | 2526 | 75 5 3 |
| | α Pegasi | E. | 97 25 5 | 2161 | 95 35 39 | 2159 | 93 46 10 | 2159 | 91 56 40 |
| 23 | Spica ♍ | W. | 66 24 23 | 2030 | 68 17 10 | 2035 | 70 9 50 | 2040 | 72 2 22 |
| | Antares | W. | 21 36 39 | 2177 | 23 25 42 | 2161 | 25 15 8 | 2149 | 27 4 52 |
| | Mars | E. | 46 9 26 | 2254 | 44 22 18 | 2264 | 42 35 26 | 2275 | 40 48 50 |
| | Saturn | E. | 51 6 42 | 2075 | 49 15 5 | 2083 | 47 23 39 | 2091 | 45 32 26 |
| | Fomalhaut | E. | 66 46 18 | 2616 | 65 7 45 | 2638 | 63 29 42 | 2665 | 61 52 15 |
| | α Pegasi | E. | 82 49 49 | 2175 | 81 0 44 | 2182 | 79 11 50 | 2189 | 77 23 6 |
| | Jupiter | E. | 119 56 59 | 2104 | 118 6 6 | 2109 | 116 15 20 | 2113 | 114 2[illegible] |
| 24 | Spica ♍ | W. | 81 22 21 | 2085 | 83 13 44 | 2095 | 85 4 51 | 2104 | [illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 16 | Regulus | W. | 27 6 2 | 2697 | 28 42 46 | 2668 | 30 20 9 | 2641 | 31 58 8 | 2616 |
| | Spica ♍ | E. | 27 26 25 | 2598 | 25 47 27 | 2580 | 24 8 4 | 2562 | 22 28 17 | 2544 |
| | Antares | E. | 73 0 46 | 2618 | 71 22 16 | 2600 | 69 43 21 | 2583 | 68 4 2 | 2564 |
| 17 | Sun | W. | 130 45 28 | 2763 | 132 20 44 | 2743 | 133 56 27 | 2724 | 135 32 35 | 2704 |
| | Pollux | W. | 77 15 27 | 2532 | 78 55 56 | 2512 | 80 36 52 | 2493 | 82 18 15 | 2475 |
| | Regulus | W. | 40 16 27 | 2498 | 41 57 43 | 2477 | 43 39 29 | 2455 | 45 21 45 | 2435 |
| | Antares | E. | 59 41 17 | 2476 | 57 59 30 | 2459 | 56 17 19 | 2442 | 54 34 44 | 2424 |
| | α Aquilæ | E. | 110 56 29 | 2920 | 109 24 36 | 2891 | 107 52 6 | 2865 | 106 19 2 | 2838 |
| 18 | Pollux | W. | 90 51 40 | 2385 | 92 35 37 | 2368 | 94 19 58 | 2352 | 96 4 42 | 2336 |
| | Regulus | W. | 54 0 19 | 2337 | 55 45 25 | 2318 | 57 30 58 | 2300 | 59 16 57 | 2283 |
| | Antares | E. | 45 55 54 | 2346 | 44 11 1 | 2332 | 42 25 48 | 2318 | 40 40 14 | 2306 |
| | α Aquilæ | E. | 98 25 36 | 2723 | 96 49 27 | 2702 | 95 12 50 | 2684 | 93 35 48 | 2666 |
| | Mars | E. | 109 47 48 | 2503 | 108 6 39 | 2485 | 106 25 4 | 2467 | 104 43 4 | 2449 |
| 19 | Pollux | W. | 104 53 55 | 2265 | 106 40 46 | 2253 | 108 27 55 | 2241 | 110 15 21 | 2231 |
| | Regulus | W. | 68 13 5 | 2202 | 70 1 29 | 2188 | 71 50 14 | 2175 | 73 39 20 | 2161 |
| | Antares | E. | 31 48 17 | 2258 | 30 1 16 | 2254 | 28 14 8 | 2252 | 26 26 57 | 2253 |
| | α Aquilæ | E. | 85 25 3 | 2593 | 83 45 58 | 2581 | 82 6 37 | 2572 | 80 27 3 | 2564 |
| | Mars | E. | 96 7 3 | 2368 | 94 22 42 | 2354 | 92 38 1 | 2340 | 90 53 0 | 2326 |
| | Saturn | E. | 102 58 35 | 2208 | 101 10 20 | 2194 | 99 21 44 | 2181 | 97 32 47 | 2168 |
| 20 | Regulus | W. | 82 49 35 | 2104 | 84 40 28 | 2094 | 86 31 36 | 2086 | 88 22 57 | 2078 |
| | Spica ♍ | W. | 28 50 53 | 2084 | 30 42 17 | 2075 | 32 33 55 | 2066 | 34 25 47 | 2057 |
| | α Aquilæ | E. | 72 7 5 | 2545 | 70 26 54 | 2547 | 68 46 46 | 2550 | 67 6 42 | 2556 |
| | Mars | E. | 82 3 20 | 2270 | 80 16 36 | 2261 | 78 29 39 | 2252 | 76 42 29 | 2245 |
| | Saturn | E. | 88 23 24 | 2111 | 86 32 42 | 2102 | 84 41 45 | 2094 | 82 50 36 | 2085 |
| | Fomalhaut | E. | 100 14 42 | 2574 | 98 35 11 | 2560 | 96 55 21 | 2548 | 95 15 14 | 2537 |
| 21 | Regulus | W. | 97 42 23 | 2049 | 99 34 41 | 2046 | 101 27 4 | 2043 | 103 19 31 | 2041 |
| | Spica ♍ | W. | 43 47 53 | 2028 | 45 40 44 | 2024 | 47 33 41 | 2021 | 49 26 42 | 2019 |
| | α Aquilæ | E. | 58 49 29 | 2621 | 57 11 3 | 2643 | 55 33 7 | 2670 | 53 55 47 | 2700 |
| | Mars | E. | 67 44 14 | 2219 | 65 56 15 | 2217 | 64 8 12 | 2215 | 62 20 6 | 2215 |
| | Saturn | E. | 73 32 12 | 2058 | 71 40 8 | 2055 | 69 47 59 | 2053 | 67 55 47 | 2051 |
| | Fomalhaut | E. | 86 51 37 | 2507 | 85 10 33 | 2506 | 83 29 28 | 2506 | 81 48 23 | 2509 |
| 22 | Regulus | W. | 112 42 8 | 2043 | 114 34 35 | 2046 | 116 26 57 | 2050 | 118 19 13 | 2053 |
| | Spica ♍ | W. | 58 52 22 | 2018 | 60 45 28 | 2020 | 62 38 31 | 2023 | 64 31 30 | 2026 |
| | α Aquilæ | E. | 46 1 2 | 2925 | 44 29 15 | 2991 | 42 58 51 | 3066 | 41 30 0 | 3150 |
| | Mars | E. | 53 19 51 | 2225 | 51 32 1 | 2231 | 49 44 19 | 2237 | 47 56 47 | 2245 |
| | Saturn | E. | 58 34 34 | 2055 | 56 42 26 | 2059 | 54 50 24 | 2064 | 52 58 29 | 2069 |
| | Fomalhaut | E. | 73 24 40 | 2548 | 71 44 33 | 2561 | 70 4 45 | 2577 | 68 25 19 | 2596 |
| | α Pegasi | E. | 90 7 11 | 2161 | 88 17 44 | 2163 | 86 28 20 | 2166 | 84 39 1 | 2171 |
| 23 | Spica ♍ | W. | 73 54 44 | 2053 | 75 46 56 | 2060 | 77 38 57 | 2068 | 79 30 46 | 2077 |
| | Antares | W. | 28 54 46 | 2138 | 30 44 47 | 2137 | 32 34 50 | 2137 | 34 24 53 | 2140 |
| | Mars | E. | 39 2 34 | 2303 | 37 16 39 | 2320 | 35 31 9 | 2339 | 33 46 6 | 2360 |
| | Saturn | E. | 43 41 26 | 2110 | 41 50 42 | 2122 | 40 0 16 | 2134 | 38 10 8 | 2148 |
| | Fomalhaut | E. | 60 15 25 | 2724 | 58 39 17 | 2758 | 57 3 54 | 2797 | 55 29 22 | 2838 |
| | α Pegasi | E. | 75 34 34 | 2206 | 73 46 16 | 2216 | 71 58 13 | 2228 | 70 10 27 | 2241 |
| | Jupiter | E. | 112 34 12 | 2126 | 110 43 52 | 2133 | 108 53 43 | 2140 | 107 3 45 | 21 |
| | | | ′ | 21 2126 | 90 36 41 | 2137 | 92 26 44 | 2148 | 94 16 30 | 2 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 24 | Antares | W. | 36 14 52 | 2142 | 38 4 47 | 2147 | 39 54 35 | 2153 | 41 44 13 |
| | Mars | E. | 32 1 34 | 2384 | 30 17 36 | 2410 | 28 34 16 | 2442 | 26 51 41 |
| | Saturn | E. | 36 20 22 | 2163 | 34 30 59 | 2180 | 32 42 1 | 2198 | 30 53 31 |
| | Fomalhaut | E. | 53 55 44 | 2884 | 52 23 5 | 2935 | 50 51 30 | 2991 | 49 21 6 |
| | α Pegasi | E. | 68 23 0 | 2253 | 66 35 51 | 2268 | 64 49 4 | 2283 | 63 2 39 |
| | Jupiter | E. | 105 14 0 | 2158 | 103 24 29 | 2167 | 101 35 11 | 2177 | 99 46 9 |
| | Sun | E. | 140 3 36 | 2373 | 138 19 23 | 2384 | 136 35 25 | 2395 | 134 51 43 |
| 25 | Spica ♍ | W. | 96 5 57 | 2173 | 97 55 5 | 2185 | 99 43 55 | 2198 | 101 32 25 |
| | Antares | W. | 50 49 22 | 2206 | 52 37 40 | 2218 | 54 25 41 | 2229 | 56 13 26 |
| | α Pegasi | E. | 54 17 5 | 2398 | 52 33 28 | 2423 | 50 50 26 | 2448 | 49 7 59 |
| | Jupiter | E. | 90 45 2 | 2246 | 88 57 43 | 2258 | 87 10 42 | 2272 | 85 24 1 |
| | Sun | E. | 126 17 18 | 2467 | 124 35 19 | 2481 | 122 53 39 | 2495 | 121 12 18 |
| 26 | Antares | W. | 65 7 30 | 2307 | 66 53 20 | 2320 | 68 38 50 | 2334 | 70 24 0 |
| | α Pegasi | E. | 40 46 19 | 2646 | 39 8 27 | 2690 | 37 31 33 | 2738 | 35 55 43 |
| | Jupiter | E. | 76 35 38 | 2356 | 74 51 0 | 2371 | 73 6 43 | 2386 | 71 22 48 |
| | α Arietis | E. | 82 38 17 | 2326 | 80 52 55 | 2341 | 79 7 55 | 2355 | 77 23 16 |
| | Sun | E. | 112 50 41 | 2584 | 111 11 24 | 2599 | 109 32 28 | 2615 | 107 53 54 |
| 27 | Antares | W. | 79 4 38 | 2421 | 80 47 43 | 2436 | 82 30 27 | 2450 | 84 12 50 |
| | Jupiter | E. | 62 48 38 | 2477 | 61 6 53 | 2492 | 59 25 29 | 2508 | 57 44 28 |
| | α Arietis | E. | 68 45 39 | 2450 | 67 3 16 | 2467 | 65 21 16 | 2482 | 63 39 38 |
| | Sun | E. | 99 46 25 | 2711 | 98 10 0 | 2727 | 96 33 56 | 2743 | 94 58 13 |
| 28 | Antares | W. | 92 39 36 | 2538 | 94 19 56 | 2552 | 95 59 57 | 2567 | 97 39 37 |
| | α Aquilæ | W. | 45 3 58 | 3406 | 46 26 8 | 3372 | 47 48 56 | 3343 | 49 12 18 |
| | Mars | W. | 24 53 48 | 2897 | 26 26 11 | 2887 | 27 58 46 | 2881 | 29 31 29 |
| | Saturn | W. | 21 45 23 | 2696 | 23 22 9 | 2687 | 24 59 7 | 2683 | 26 36 10 |
| | Jupiter | E. | 49 24 39 | 2601 | 47 45 45 | 2615 | 46 7 11 | 2631 | 44 28 58 |
| | α Arietis | E. | 55 17 19 | 2583 | 53 38 0 | 2601 | 51 59 6 | 2618 | 50 20 35 |
| | Sun | E. | 87 4 52 | 2838 | 85 31 13 | 2853 | 83 57 54 | 2868 | 82 24 54 |
| 29 | α Aquilæ | W. | 56 15 11 | 3238 | 57 40 35 | 3230 | 59 6 9 | 3222 | 60 31 52 |
| | Mars | W. | 37 14 57 | 2894 | 38 47 24 | 2900 | 40 19 43 | 2906 | 41 51 54 |
| | Saturn | W. | 34 40 52 | 2703 | 36 17 28 | 2711 | 37 53 54 | 2718 | 39 30 10 |
| | Jupiter | E. | 36 22 56 | 2721 | 34 46 44 | 2736 | 33 10 52 | 2751 | 31 35 20 |
| | α Arietis | E. | 42 14 6 | 2728 | 40 38 3 | 2748 | 39 2 27 | 2768 | 37 27 17 |
| | Sun | E. | 74 44 43 | 2957 | 73 13 36 | 2970 | 71 42 46 | 2984 | 70 12 13 |
| 30 | α Aquilæ | W. | 67 41 31 | 3208 | 69 7 31 | 3209 | 70 33 29 | 3211 | 71 59 25 |
| | Mars | W. | 49 30 19 | 2954 | 51 1 29 | 2963 | 52 32 28 | 2973 | 54 3 15 |
| | Saturn | W. | 47 28 42 | 2770 | 49 3 49 | 2779 | 50 38 45 | 2789 | 52 13 28 |
| | Fomalhaut | W. | 42 8 50 | 3938 | 43 21 31 | 3880 | 44 35 11 | 3826 | 45 49 46 |
| | α Arietis | E. | 29 39 3 | 2919 | 28 7 8 | 2951 | 26 35 54 | 2988 | 25 5 26 |
| | Sun | E. | 62 43 40 | 3063 | 61 14 45 | 3075 | 59 46 5 | 3087 | 58 17 40 |
| 31 | α Aquilæ | W. | 79 8 6 | 3235 | 80 33 34 | 3241 | 81 58 55 | 3247 | 83 24 9 |
| | Mars | W. | 61 34 31 | 3024 | 63 4 14 | 3033 | 64 33 46 | 3040 | 66 3 9 |
| | Saturn | W. | 60 4 9 | 2841 | 61 37 43 | 2849 | 63 11 7 | 2859 | 64 44 19 |
| | Fomalhaut | W. | 52 13 5 | 3616 | 53 31 22 | 3593 | 54 50 4 | 3574 | 56 9 7 |
| | α Pegasi | W. | 31 27 10 | 3365 | 32 50 7 | 3329 | 34 13 45 | 3299 | 35 37 58 |
| | Sun | E. | 50 59 4 | 3154 | 49 32 0 | 3166 | 48 5 10 | 3175 | 46 38 31 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 24 | Antares | W. | 43 33 41 | 2169 | 45 22 56 | 2177 | 47 11 59 | 2186 | 49 0 48 | 2196 |
| | Mars | E. | 25 9 57 | 2520 | 23 29 11 | 2569 | 21 49 34 | 2630 | 20 11 20 | 2704 |
| | Saturn | E. | 29 5 33 | 2243 | 27 18 9 | 2269 | 25 31 24 | 2300 | 23 45 24 | 2335 |
| | Fomalhaut | E. | 47 51 57 | 3119 | 46 24 10 | 3194 | 44 57 54 | 3276 | 43 33 14 | 3367 |
| | α Pegasi | E. | 61 16 38 | 2316 | 59 31 2 | 2335 | 57 45 54 | 2355 | 56 1 14 | 2376 |
| | Jupiter | E. | 97 57 22 | 2198 | 96 8 51 | 2209 | 94 20 37 | 2221 | 92 32 41 | 2233 |
| | Sun | E. | 133 8 16 | 2417 | 131 25 5 | 2429 | 129 42 11 | 2441 | 127 59 35 | 2455 |
| 25 | Spica ♍ | W. | 103 20 35 | 2226 | 105 8 24 | 2239 | 106 55 53 | 2253 | 108 43 2 | 2267 |
| | Antares | W. | 58 0 52 | 2254 | 59 48 0 | 2266 | 61 34 49 | 2279 | 63 21 19 | 2292 |
| | α Pegasi | E. | 47 26 11 | 2505 | 45 45 5 | 2536 | 44 4 42 | 2569 | 42 25 5 | 2607 |
| | Jupiter | E. | 83 37 39 | 2299 | 81 51 38 | 2313 | 80 5 57 | 2327 | 78 20 37 | 2342 |
| | Sun | E. | 119 31 18 | 2524 | 117 50 38 | 2538 | 116 10 18 | 2553 | 114 30 19 | 2569 |
| 26 | Antares | W. | 72 8 49 | 2362 | 73 53 18 | 2378 | 75 37 25 | 2391 | 77 21 12 | 2406 |
| | α Pegasi | E. | 34 21 1 | 2849 | 32 47 36 | 2914 | 31 15 35 | 2988 | 29 45 7 | 3072 |
| | Jupiter | E. | 69 39 15 | 2416 | 67 56 3 | 2431 | 66 13 13 | 2446 | 64 30 44 | 2463 |
| | α Arietis | E. | 75 39 0 | 2387 | 73 55 6 | 2403 | 72 11 35 | 2418 | 70 28 26 | 2434 |
| | Sun | E. | 106 15 41 | 2647 | 104 37 50 | 2663 | 103 0 20 | 2679 | 101 23 12 | 2695 |
| 27 | Antares | W. | 85 54 52 | 2480 | 87 36 34 | 2495 | 89 17 55 | 2510 | 90 58 55 | 2523 |
| | Jupiter | E. | 56 3 47 | 2540 | 54 23 29 | 2554 | 52 43 31 | 2570 | 51 3 55 | 2585 |
| | α Arietis | E. | 61 58 24 | 2516 | 60 17 33 | 2533 | 58 37 5 | 2549 | 56 57 0 | 2566 |
| | Sun | E. | 93 22 51 | 2776 | 91 47 51 | 2791 | 90 13 11 | 2806 | 88 38 51 | 2822 |
| 28 | Antares | W. | 99 18 59 | 2595 | 100 58 0 | 2609 | 102 36 43 | 2622 | 104 15 8 | 2637 |
| | α Aquilæ | W. | 50 36 10 | 3296 | 52 0 26 | 3277 | 53 25 4 | 3262 | 54 50 0 | 3249 |
| | Mars | W. | 31 4 14 | 2879 | 32 37 0 | 2881 | 34 9 43 | 2884 | 35 42 23 | 2888 |
| | Saturn | W. | 28 13 14 | 2683 | 29 50 16 | 2686 | 31 27 15 | 2691 | 33 4 7 | 2696 |
| | Jupiter | E. | 42 51 5 | 2661 | 41 13 33 | 2676 | 39 36 21 | 2690 | 37 59 28 | 2706 |
| | α Arietis | E. | 48 42 28 | 2654 | 47 4 46 | 2671 | 45 27 28 | 2689 | 43 50 33 | 2709 |
| | Sun | E. | 80 52 14 | 2899 | 79 19 54 | 2913 | 77 47 52 | 2928 | 76 16 8 | 2943 |
| 29 | α Aquilæ | W. | 61 57 41 | 3213 | 63 23 35 | 3210 | 64 49 32 | 3209 | 66 15 31 | 3208 |
| | Mars | W. | 43 23 55 | 2921 | 44 55 47 | 2930 | 46 27 28 | 2938 | 47 58 59 | 2946 |
| | Saturn | W. | 41 6 16 | 2735 | 42 42 10 | 2744 | 44 17 52 | 2752 | 45 53 23 | 2761 |
| | Jupiter | E. | 30 0 8 | 2782 | 28 25 16 | 2798 | 26 50 46 | 2814 | 25 16 36 | 2831 |
| | α Arietis | E. | 35 52 36 | 2813 | 34 18 25 | 2836 | 32 44 44 | 2862 | 31 11 36 | 2889 |
| | Sun | E. | 68 41 58 | 3011 | 67 11 59 | 3025 | 65 42 17 | 3038 | 64 12 51 | 3050 |
| 30 | α Aquilæ | W. | 73 25 18 | 3216 | 74 51 8 | 3220 | 76 16 53 | 3225 | 77 42 32 | 3230 |
| | Mars | W. | 55 33 52 | 2989 | 57 4 18 | 2998 | 58 34 33 | 3007 | 60 4 37 | 3015 |
| | Saturn | W. | 53 48 0 | 2807 | 55 22 19 | 2815 | 56 56 27 | 2824 | 58 30 24 | 2833 |
| | Fomalhaut | W. | 47 5 8 | 3739 | 48 21 14 | 3703 | 49 37 58 | 3671 | 50 55 16 | 3642 |
| | α Arietis | E. | 23 35 49 | 3076 | 22 7 10 | 3131 | 20 39 38 | 3198 | 19 13 26 | 3277 |
| | Sun | E. | 56 49 29 | 3110 | 55 21 32 | 3122 | 53 53 49 | 3134 | 52 26 20 | 3144 |
| 31 | α Aquilæ | W. | 84 49 15 | 3260 | 86 14 13 | 3268 | 87 39 2 | 3275 | 89 3 43 | 3283 |
| | Mars | W. | 67 32 21 | 3057 | 69 1 23 | 3065 | 70 30 16 | 3073 | 71 58 58 | 3080 |
| | Saturn | W. | 66 17 20 | 2874 | 67 50 12 | 2883 | 69 22 53 | 2891 | 70 55 23 | 2898 |
| | Fomalhaut | W. | 57 28 30 | 3540 | 58 48 10 | 3526 | 60 8 5 | 3514 | 61 28 14 | 3503 |
| | α Pegasi | W. | 37 2 40 | 3252 | 38 27 48 | 3234 | 39 53 17 | 3218 | 41 19 5 | 3206 |
| | Sun | E. | 45 12 5 | 3196 | 43 45 51 | 3205 | 42 19 48 | 3214 | 40 53 55 | 3224 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER,

At 16$^h$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| | The SATELLITES are not visible until the 4th day of this Month, JUPITER being too near to the SUN. | |
| 4 | 2· | ○ ·1 ·3 4· |
| 5 | ·2 1· | ○ 4· 3. |
| 6 | 4· | ○ ·1 ·2 3· |
| 7 | 4· ·1 3· | ○ 2· |
| 8 | 4· 3· 2· | ○ 1· |
| 9 | 4· ·3 ·1 | ○ ●·2 |
| 10 | ·4 ·3 | ○ 2· ○ |
| 11 | ·4 2· | ○ ·1 ·3 |
| 12 | ·4 ·2 1· | ○ ·3 |
| 13 | ·4 | ○ ·1 ·2 3· |
| 14 | ·1 ·4 3 | ○· 2· |
| 15 | 3· 2· | ○ 1· ·4 |
| 16 | ·3 ·1 ·2 | ○ ·4 |
| 17 | ·3 | ○ 1· 2. ·4 |
| 18 | ·1 ● 2· | ○ ·3 ·4 |
| 19 | ·2 1· | ○ ·3 4. |
| 20 | | ○ ·1 ·2 3· 4· |
| 21 | 1· | ○ 3· 2· 4· |
| 22 | 3· 2· | ○ 1. 4· |
| 23 | ·3 ·1 ·2 4· | ○ |
| 24 | 4· ·3 | ○ 1· ·2 |
| 25 | 4· ·1 | ○ ·3 ○2 |
| 26 | 4· ·2 | ○ ·3 ○1· |
| 27 | ·4 | ○ ·1 ·2 3· |
| 28 | ·4 1· | ○ 3· 2· |
| 29 | ·4 3· 2· | ○ ·1 |
| 30 | 3· ·4 ·1 ·2 | ○ |
| 31 | ·3 ·4 | ○ 1· ·2 |

This Table represents, at 16$^h$ after *Mean Noon* of each day of the month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the page; the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.*

| TELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 4 | 10 31 35 ·5 | 13 22 14 ·2 | Im. |
| | 6 | 5 0 8 ·4 | 7 57 45 ·8 | Im. |
| | 7 | 23 28 44 ·7 | 2 33 20 ·8 | Im. |
| | 9 | 17 57 17 ·6 | 21 8 52 ·3 | Im. |
| | 11 | 12 25 51 ·0 | 15 44 24 ·4 | Im. |
| | 13 | 6 54 22 ·7 | 10 19 54 ·8 | Im. |
| | 15 | 1 22 57 ·0 | 4 55 27 ·7 | Im. |
| | 16 | 19 51 28 ·8 | 23 30 58 ·2 | Im. i |
| | 18 | 14 20 0 ·5 | 18 6 28 ·6 | Im. *  |
| | 20 | 8 48 31 ·0 | 12 41 57 ·7 | Im. |
| | 22 | 3 17 3 ·9 | 7 17 29 ·3 | Im. |
| | 23 | 21 45 34 ·8 | 1 52 58 ·9 | Im. |
| | 25 | 16 14 4 ·9 | 20 28 27 ·6 | Im. |
| | 27 | 10 42 34 ·3 | 15 3 55 ·6 | Im. |
| | 29 | 5 11 5 ·4 | 9 39 25 ·4 | Im. |
| | 30 | 23 39 35 ·5 | 4 14 54 ·2 | Im. |
| I. | 6 | 0 8 44 ·6 | 3 5 34 ·2 | Im. |
| | 9 | 13 28 4 ·9 | 16 38 55 ·4 | Im. |
| | 13 | 2 46 27 ·0 | 6 11 18 ·4 | Im. |
| | 16† | 16 5 48 ·7 | 19 44 41 ·1 | Im. i |
| | 20 | 5 24 9 ·9 | 9 17 3 ·0 | Im. *  |
| | 23 | 18 43 33 ·2 | 22 50 27 ·4 | Im. |
| | 27 | 8 1 53 ·0 | 12 22 47 ·9 | Im. |
| | 30 | 21 21 17 ·4 | 1 56 13 ·3 | Im. |
| II. | 11 | 0 14 57 ·5 | 3 31 30 ·9 | Im. |
| | 18 | 4 16 16 ·5 | 8 1 5 ·4 | Im. |
| | 18 | 6 41 5 ·3 | 10 26 18 ·0 | Em. |
| | 25 | 8 17 51 ·0 | 12 30 55 ·4 | Im. i e  |
| | 25 | 10 41 41 ·7 | 14 55 9 ·8 | Em. * * |

* The Satellites are not visible until the 4th day of this Month, Jupiter being too near to the Sun.

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,*
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | | 4 16 3 | 5 11 3 | 5 13 18 | 5 10 33 | 5 12 47 |
| | | 6 10 40 | 7 5 41 | 7 7 55 | 7 5 9 | 7 7 23 |
| | | 8 5 17 | 8 0 18 | 8 2 32 | 8 23 45 | 8 1 59 |
| | | 9 23 55 | 10† 18 56 | 10 21 10 | 10 18 21 | 10 20 35 |
| | In | 11 18 32 | 12 13 33 | 12 15 47 | 12 12 56 | 12 15 10 |
| | | 13 13 9 | 14 8 11 | 14 10 24 | 14 7 32 | 14 9 46 |
| | | 15 7 46 | 15 2 48 | 16 5 2 | 15 2 7 | 16 4 21 |
| | | 16 2 24 | 17 21 25 | 17 23 39 | 17 20 43 | 17 22 57 |
| | the | 18 21 1 | 19 16 2 | 19 18 16 | 19 15 19 | 19 17 33 |
| | | 20 15 38 | 21 10 40 | 21 12 54 | 21 9 54 | 21 12 8 |
| | | 22 10 15 | 23 5 17 | 23 7 31 | 23 4 30 | 23 6 44 |
| | | 24 4 52 | 24 23 54 | 24 2 8 | 24 23 6 | 24 1 20 |
| | Shadow. | 25 23 29 | 26 18 32 | 26 20 45 | 26 17 41 | 26† 19 55 |
| | | 27 18 6 | 28 13 9 | 28 15 22 | 28 12 17 | 28 14 31 |
| | | 29 12 43 | 30 7 46 | 30 9 59 | 30 6 53 | 30 9 6 |
| | | 31 7 20 | 31 2 23 | 31 4 37 | 31 1 28 | 31 3 42 |
| II. | | 6 6 40 | 4 9 35 | 4 12 10 | 4 8 37 | 4 11 10 |
| | | 9 20 21 | 7 23 14 | 7 1 49 | 7 22 8 | 7 0 42 |
| | In | 13 10 0 | 11 12 53 | 11 15 28 | 11 11 40 | 11 14 13 |
| | | 16 23 40 | 14 2 32 | 15 5 6 | 14 1 12 | 15 3 45 |
| | the | 20 13 19 | 18 16 10 | 18 18 44 | 18 14 43 | 18 17 16 |
| | | 23 2 59 | 22 5 48 | 22 8 22 | 22 4 15 | 22 6 48 |
| | Shadow. | 27 16 38 | 25† 19 27 | 25 22 0 | 25 17 46 | 25 20 19 |
| | | 31 6 17 | 29 9 5 | 29 11 38 | 29 7 18 | 29 9 51 |
| III. | In the | 4 3 35 | 7 15 18 | 7 18 4 | 7 13 10 | 7 15 51 |
| | Shadow. | 11 8 32 | 14 20 16 | 14 22 59 | 14 17 39 | 14 20 20 |
| | 18 10 45 | 18 13 27 | 21 1 14 | 21 3 54 | 21 22 8 | 21 0 48 |
| | 25 15 43 | 25 18 21 | 29 6 11 | 29 8 48 | 28 2 38 | 29 5 17 |

* The Satellites are not visible until the 4th day of this Month, Jupiter being too near to the Sun.

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·840658. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|
| | | | | h m s | | | |
| —1 ·1463 | —1 ·1294 | +9 ·7748 | +0 ·6994 | 21 19 24 ·49 | 39 | 120 | ·329 |
| 1 ·1397 | 1 ·1376 | 9 ·7766 | 0 ·7017 | 21 15 28 ·58 | 40 | 121 | ·331 |
| 1 ·1329 | 1 ·1455 | 9 ·7784 | 0 ·7039 | 21 11 32 ·67 | 41 | 122 | ·334 |
| —1 ·1258 | —1 ·1531 | +9 ·7803 | +0 ·7061 | 21 7 36 ·76 | 42 | 123 | ·337 |
| 1 ·1185 | 1 ·1605 | 9 ·7821 | 0 ·7082 | 21 3 40 ·85 | 43 | 124 | ·339 |
| 1 ·1110 | 1 ·1676 | 9 ·7840 | 0 ·7104 | 20 59 44 ·94 | 44 | 125 | ·342 |
| —1 ·1032 | —1 ·1745 | +9 ·7858 | +0 ·7126 | 20 55 49 ·03 | 45 | 126 | ·345 |
| 1 ·0952 | 1 ·1812 | 9 ·7877 | 0 ·7147 | 20 51 53 ·13 | 46 | 127 | ·348 |
| 1 ·0868 | 1 ·1876 | 9 ·7896 | 0 ·7169 | 20 47 57 ·22 | 47 | 128 | ·350 |
| —1 ·0782 | —1 ·1938 | +9 ·7915 | +0 ·7190 | 20 44 1 ·31 | 48 | 129 | ·353 |
| 1 ·0693 | 1 ·1999 | 9 ·7934 | 0 ·7211 | 20 40 5 ·40 | 49 | 130 | ·356 |
| 1 ·0601 | 1 ·2057 | 9 ·7953 | 0 ·7231 | 20 36 9 ·49 | 50 | 131 | ·359 |
| —1 ·0506 | —1 ·2113 | +9 ·7973 | +0 ·7252 | 20 32 13 ·58 | 51 | 132 | ·361 |
| 1 ·0407 | 1 ·2167 | 9 ·7992 | 0 ·7272 | 20 28 17 ·67 | 52 | 133 | ·364 |
| 1 ·0305 | 1 ·2219 | 9 ·8011 | 0 ·7292 | 20 24 21 ·76 | 53 | 134 | ·367 |
| —1 ·0199 | —1 ·2269 | +9 ·8031 | +0 ·7311 | 20 20 25 ·85 | 54 | 135 | ·370 |
| 1 ·0089 | 1 ·2317 | 9 ·8051 | 0 ·7331 | 20 16 29 ·94 | 55 | 136 | ·372 |
| 0 ·9975 | 1 ·2364 | 9 ·8070 | 0 ·7350 | 20 12 34 ·03 | 56 | 137 | ·375 |
| —0 ·9857 | —1 ·2409 | +9 ·8090 | +0 ·7369 | 20 8 38 ·12 | 57 | 138 | ·378 |
| 0 ·9735 | 1 ·2452 | 9 ·8110 | 0 ·7387 | 20 4 42 ·21 | 58 | 139 | ·381 |
| 0 ·9607 | 1 ·2494 | 9 ·8130 | 0 ·7405 | 20 0 46 ·30 | 59 | 140 | ·383 |
| —0 ·9475 | —1 ·2534 | +9 ·8150 | +0 ·7423 | 19 56 50 ·39 | 60 | 141 | ·386 |
| 0 ·9337 | 1 ·2572 | 9 ·8170 | 0 ·7441 | 19 52 54 ·48 | 61 | 142 | ·389 |
| 0 ·9194 | 1 ·2609 | 9 ·8191 | 0 ·7458 | 19 48 58 ·57 | 62 | 143 | ·392 |
| —0 ·9044 | —1 ·2645 | +9 ·8211 | +0 ·7474 | 19 45 2 ·66 | 63 | 144 | ·394 |
| 0 ·8888 | 1 ·2679 | 9 ·8231 | 0 ·7491 | 19 41 6 ·75 | 64 | 145 | ·397 |
| 0 ·8725 | 1 ·2711 | 9 ·8251 | 0 ·7507 | 19 37 10 ·84 | 65 | 146 | ·400 |
| —0 ·8554 | —1 ·2742 | +9 ·8272 | +0 ·7522 | 19 33 14 ·93 | 66 | 147 | ·402 |
| 0 ·8375 | 1 ·2771 | 9 ·8292 | 0 ·7538 | 19 29 19 ·02 | 67 | 148 | ·405 |
| 0 ·8187 | 1 ·2799 | 9 ·8312 | 0 ·7552 | 19 25 23 ·11 | 68 | 149 | ·408 |
| 0 ·7989 | 1 ·2826 | 9 ·8333 | 0 ·7567 | 19 21 27 ·19 | 69 | 150 | ·411 |
| —0 ·7781 | —1 ·2851 | +9 ·8353 | +0 ·7581 | 19 17 31 ·28 | 70 | 151 | ·413 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, to be subt. from added to Apparent Time. | I |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | ′ |
| *Sun.* | 1 | 4 36 46 ·80 | 10 ·241 | N.22 4 46 ·9 | 19 ·83 | 1 8 ·33 | 2 31 ·35 | 0 |
| Mon. | 2 | 4 40 52 ·59 | 10 ·258 | 22 12 42 ·8 | 18 ·86 | 1 8 ·38 | 2 22 ·14 | 0 |
| Tues. | 3 | 4 44 58 ·78 | 10 ·274 | 22 20 15 ·5 | 17 ·88 | 1 8 ·43 | 2 12 ·54 | 0 |
| Wed. | 4 | 4 49 5 ·35 | 10 ·288 | 22 27 24 ·7 | 16 ·91 | 1 8 ·48 | 2 2 ·55 | 0 |
| Thur. | 5 | 4 53 12 ·26 | 10 ·302 | 22 34 10 ·5 | 15 ·92 | 1 8 ·53 | 1 52 ·22 | 0 |
| Frid. | 6 | 4 57 19 ·51 | 10 ·315 | 22 40 32 ·5 | 14 ·93 | 1 8 ·57 | 1 41 ·56 | 0 |
| Sat. | 7 | 5 1 27 ·07 | 10 ·327 | 22 46 30 ·8 | 13 ·93 | 1 8 ·61 | 1 30 ·59 | 0 |
| *Sun.* | 8 | 5 5 34 ·91 | 10 ·338 | 22 52 5 ·0 | 12 ·93 | 1 8 ·65 | 1 19 ·34 | 0 |
| Mon. | 9 | 5 9 43 ·01 | 10 ·347 | 22 57 15 ·2 | 11 ·92 | 1 8 ·69 | 1 7 ·83 | 0 |
| Tues. | 10 | 5 13 51 ·33 | 10 ·356 | 23 2 1 ·2 | 10 ·90 | 1 8 ·72 | 0 56 ·10 | 0 |
| Wed. | 11 | 5 17 59 ·87 | 10 ·364 | 23 6 22 ·9 | 9 ·89 | 1 8 ·75 | 0 44 ·15 | 0 |
| Thur. | 12 | 5 22 8 ·60 | 10 ·371 | 23 10 20 ·3 | 8 ·87 | 1 8 ·78 | 0 32 ·00 | 0 |
| Frid. | 13 | 5 26 17 ·50 | 10 ·377 | 23 13 53 ·1 | 7 ·85 | 1 8 ·81 | 0 19 ·70 | 0 |
| Sat. | 14 | 5 30 26 ·54 | 10 ·382 | 23 17 1 ·5 | 6 ·82 | 1 8 ·83 | 0 7 ·25 | 0 |
| *Sun.* | 15 | 5 34 35 ·70 | 10 ·386 | 23 19 45 ·2 | 5 ·79 | 1 8 ·85 | 0 5 ·32 | 0 |
| Mon. | 16 | 5 38 44 ·96 | 10 ·390 | 23 22 4 ·2 | 4 ·77 | 1 8 ·86 | 0 17 ·99 | 0 |
| Tues. | 17 | 5 42 54 ·31 | 10 ·392 | 23 23 58 ·6 | 3 ·74 | 1 8 ·87 | 0 30 ·74 | 0 |
| Wed. | 18 | 5 47 3 ·72 | 10 ·394 | 23 25 28 ·3 | 2 ·70 | 1 8 ·88 | 0 43 ·56 | 0 |
| Thur. | 19 | 5 51 13 ·17 | 10 ·394 | 23 26 33 ·1 | 1 ·67 | 1 8 ·89 | 0 56 ·42 | 0 |
| Frid. | 20 | 5 55 22 ·63 | 10 ·395 | 23 27 13 ·2 | 0 ·63 | 1 8 ·89 | 1 9 ·29 | 0 |
| Sat. | 21 | 5 59 32 ·11 | 10 ·394 | 23 27 28 ·4 | 0 ·40 | 1 8 ·89 | 1 22 ·17 | 0 |
| *Sun.* | 22 | 6 3 41 ·57 | 10 ·392 | 23 27 18 ·9 | 1 ·43 | 1 8 ·88 | 1 35 ·04 | 0 |
| Mon. | 23 | 6 7 50 ·99 | 10 ·390 | 23 26 44 ·5 | 2 ·47 | 1 8 ·87 | 1 47 ·87 | 0 |
| Tues. | 24 | 6 12 0 ·36 | 10 ·387 | 23 25 45 ·3 | 3 ·50 | 1 8 ·86 | 2 0 ·65 | 0 |
| Wed. | 25 | 6 16 9 ·65 | 10 ·383 | 23 24 21 ·4 | 4 ·53 | 1 8 ·85 | 2 13 ·35 | 0 |
| Thur. | 26 | 6 20 18 ·85 | 10 ·378 | 23 22 32 ·7 | 5 ·56 | 1 8 ·83 | 2 25 ·96 | 0 |
| Frid. | 27 | 6 24 27 ·92 | 10 ·372 | 23 20 19 ·3 | 6 ·58 | 1 8 ·81 | 2 38 ·44 | 0 |
| Sat. | 28 | 6 28 36 ·86 | 10 ·365 | 23 17 41 ·4 | 7 ·61 | 1 8 ·78 | 2 50 ·78 | 0 |
| *Sun.* | 29 | 6 32 45 ·62 | 10 ·357 | 23 14 38 ·8 | 8 ·63 | 1 8 ·75 | 3 2 ·95 | 0 |
| Mon. | 30 | 6 36 54 ·19 | 10 ·348 | 23 11 11 ·8 | 9 ·64 | 1 8 ·72 | 3 14 ·93 | 0 |
| ~~Tues.~~ | ~~31~~ | 6 41 2 ·55 | | N.23 7 20 ·4 | | 1 8 ·69 | 3 26 ·71 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0″·19 from the *Sidereal*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be added to / subt. from Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| n. | 1 | 4 36 47 ·23 | N.22 4 47 ·7 | 15 47 ·1 | 2 31 ·34 | 4 39 18 ·57 |
| on. | 2 | 4 40 53 ·00 | 22 12 43 ·5 | 15 47 ·0 | 2 22 ·13 | 4 43 15 ·12 |
| es. | 3 | 4 44 59 ·16 | 22 20 16 ·1 | 15 46 ·8 | 2 12 ·52 | 4 47 11 ·68 |
| ed. | 4 | 4 49 5 ·70 | 22 27 25 ·3 | 15 46 ·7 | 2 2 ·54 | 4 51 8 ·24 |
| ur. | 5 | 4 53 12 ·58 | 22 34 11 ·0 | 15 46 ·6 | 1 52 ·21 | 4 55 4 ·79 |
| id. | 6 | 4 57 19 ·80 | 22 40 32 ·9 | 15 46 ·5 | 1 41 ·55 | 4 59 1 ·35 |
| . | 7 | 5 1 27 ·33 | 22 46 31 ·1 | 15 46 ·4 | 1 30 ·58 | 5 2 57 ·91 |
| n. | 8 | 5 5 35 ·14 | 22 52 5 ·3 | 15 46 ·3 | 1 19 ·33 | 5 6 54 ·47 |
| n. | 9 | 5 9 43 ·20 | 22 57 15 ·4 | 15 46 ·2 | 1 7 ·82 | 5 10 51 ·02 |
| es. | 10 | 5 13 51 ·49 | 23 2 1 ·4 | 15 46 ·1 | 0 56 ·09 | 5 14 47 ·58 |
| ed. | 11 | 5 18 0 ·00 | 23 6 23 ·0 | 15 46 ·0 | 0 44 ·14 | 5 18 44 ·14 |
| ur. | 12 | 5 22 8 ·70 | 23 10 20 ·3 | 15 45 ·9 | 0 32 ·00 | 5 22 40 ·69 |
| d. | 13 | 5 26 17 ·56 | 23 13 53 ·1 | 15 45 ·8 | 0 19 ·70 | 5 26 37 ·25 |
| . | 14 | 5 30 26 ·56 | 23 17 1 ·5 | 15 45 ·8 | 0 7 ·25 | 5 30 33 ·81 |
| n. | 15 | 5 34 35 ·68 | 23 19 45 ·2 | 15 45 ·7 | 0 5 ·32 | 5 34 30 ·37 |
| n. | 16 | 5 38 44 ·91 | 23 22 4 ·2 | 15 45 ·6 | 0 17 ·99 | 5 38 26 ·92 |
| es. | 17 | 5 42 54 ·22 | 23 23 58 ·6 | 15 45 ·6 | 0 30 ·74 | 5 42 23 ·48 |
| ed. | 18 | 5 47 3 ·59 | 23 25 28 ·2 | 15 45 ·5 | 0 43 ·56 | 5 46 20 ·04 |
| ur. | 19 | 5 51 13 ·00 | 23 26 33 ·1 | 15 45 ·4 | 0 56 ·41 | 5 50 16 ·60 |
| id. | 20 | 5 55 22 ·43 | 23 27 13 ·2 | 15 45 ·4 | 1 9 ·28 | 5 54 13 ·15 |
| . | 21 | 5 59 31 ·87 | 23 27 28 ·4 | 15 45 ·3 | 1 22 ·16 | 5 58 9 ·71 |
| n. | 22 | 6 3 41 ·29 | 23 27 18 ·9 | 15 45 ·3 | 1 35 ·03 | 6 2 6 ·27 |
| on. | 23 | 6 7 50 ·68 | 23 26 44 ·6 | 15 45 ·2 | 1 47 ·86 | 6 6 2 ·82 |
| es. | 24 | 6 12 0 ·01 | 23 25 45 ·5 | 15 45 ·2 | 2 0 ·63 | 6 9 59 ·38 |
| ed. | 25 | 6 16 9 ·27 | 23 24 21 ·6 | 15 45 ·2 | 2 13 ·33 | 6 13 55 ·94 |
| ur. | 26 | 6 20 18 ·43 | 23 22 32 ·9 | 15 45 ·1 | 2 25 ·93 | 6 17 52 ·50 |
| id. | 27 | 6 24 27 ·47 | 23 20 19 ·6 | 15 45 ·1 | 2 38 ·41 | 6 21 49 ·05 |
| . | 28 | 6 28 36 ·37 | 23 17 41 ·7 | 15 45 ·1 | 2 50 ·76 | 6 25 45 ·61 |
| n. | 29 | 6 32 45 ·10 | 23 14 39 ·3 | 15 45 ·0 | 3 2 ·93 | 6 29 42 ·17 |
| n. | 30 | 6 36 53 ·63 | 23 11 12 ·3 | 15 45 ·0 | 3 14 ·91 | 6 33 38 ·73 |
| es. | 31 | 6 41 1 ·96 | N.23 7 21 ·0 | 15 45 ·0 | 3 26 ·68 | 6 37 35 ·28 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. Noon. | THE SUN'S *Apparent* Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 70 47 6·4 | N.0·32 | 0·0062789 | 15 3·2 | 14 59·6 | 55 14·5 | 55 1·1 |
| 2 | 71 44 33·9 | 0·20 | 0·0063409 | 14 56·2 | 14 53·3 | 54 48·9 | 54 38·2 |
| 3 | 72 42 0·6 | N.0·07 | 0·0064005 | 14 50·6 | 14 48·3 | 54 28·4 | 54 20·0 |
| 4 | 73 39 26·6 | S.0·06 | 0·0064578 | 14 46·4 | 14 44·8 | 54 12·7 | 54 6·8 |
| 5 | 74 36 51·6 | 0·18 | 0·0065125 | 14 43·4 | 14 42·5 | 54 2·0 | 53 58·6 |
| 6 | 75 34 15·8 | 0·29 | 0·0065648 | 14 41·9 | 14 41·8 | 53 56·4 | 53 55·8 |
| 7 | 76 31 39·1 | 0·39 | 0·0066146 | 14 42·0 | 14 42·8 | 53 56·8 | 53 59·5 |
| 8 | 77 29 1·5 | 0·46 | 0·0066619 | 14 43·9 | 14 45·5 | 54 3·8 | 54 9·6 |
| 9 | 78 26 22·9 | 0·51 | 0·0067069 | 14 47·7 | 14 50·5 | 54 17·6 | 54 27·7 |
| 10 | 79 23 43·2 | 0·52 | 0·0067495 | 14 53·7 | 14 57·6 | 54 39·7 | 54 53·9 |
| 11 | 80 21 2·7 | 0·51 | 0·0067901 | 15 2·1 | 15 7·1 | 55 10·5 | 55 28·9 |
| 12 | 81 18 21·2 | 0·46 | 0·0068286 | 15 12·8 | 15 19·0 | 55 49·6 | 56 12·4 |
| 13 | 82 15 38·8 | 0·39 | 0·0068651 | 15 25·7 | 15 32·9 | 56 37·1 | 57 3·3 |
| 14 | 83 12 55·5 | 0·29 | 0·0068998 | 15 40·3 | 15 48·0 | 57 30·7 | 57 59·0 |
| 15 | 84 10 11·3 | 0·18 | 0·0069328 | 15 55·9 | 16 3·7 | 58 27·8 | 58 56·4 |
| 16 | 85 7 26·4 | S.0·05 | 0·0069641 | 16 11·3 | 16 18·4 | 59 24·3 | 59 50·5 |
| 17 | 86 4 40·8 | N.0·09 | 0·0069939 | 16 25·0 | 16 30·8 | 60 14·6 | 60 35·8 |
| 18 | 87 1 54·6 | 0·22 | 0·0070222 | 16 35·6 | 16 39·3 | 60 53·4 | 61 7·1 |
| 19 | 87 59 7·8 | 0·35 | 0·0070491 | 16 41·7 | 16 43·0 | 61 16·1 | 61 20·6 |
| 20 | 88 56 20·5 | 0·46 | 0·0070745 | 16 42·8 | 16 41·3 | 61 20·1 | 61 14·5 |
| 21 | 89 53 32·9 | 0·55 | 0·0070985 | 16 38·6 | 16 34·7 | 61 4·4 | 60 50·1 |
| 22 | 90 50 45·1 | 0·62 | 0·0071212 | 16 29·7 | 16 23·8 | 60 31·8 | 60 10·2 |
| 23 | 91 47 57·1 | 0·66 | 0·0071424 | 16 17·2 | 16 10·1 | 59 46·1 | 59 19·9 |
| 24 | 92 45 9·0 | 0·67 | 0·0071619 | 16 2·7 | 15 55·1 | 58 52·8 | 58 24·9 |
| 25 | 93 42 20·9 | 0·65 | 0·0071798 | 15 47·5 | 15 40·0 | 57 57·0 | 57 29·6 |
| 26 | 94 39 32·9 | 0·60 | 0·0071957 | 15 32·9 | 15 26·0 | 57 3·3 | 56 38·2 |
| 27 | 95 36 44·9 | 0·52 | 0·0072097 | 15 19·6 | 15 13·7 | 56 14·8 | 55 53·0 |
| 28 | 96 33 57·1 | 0·42 | 0·0072216 | 15 8·3 | 15 3·4 | 55 33·2 | 55 15·1 |
| 29 | 97 31 9·4 | 0·31 | 0·0072314 | 14 59·0 | 14 55·2 | 54 59·1 | 54 45·0 |
| 30 | 98 28 21·8 | 0·18 | 0·0072389 | 14 51·9 | 14 49·1 | 54 33·0 | 54 22·6 |
| 31 | 99 25 34·5 | N.0·05 | 0·0072439 | 14 46·7 | 14 44·7 | 54 13·8 | 54 6·8 |

## MEAN TIME.

| | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| ı. | 1 | 31 21 53 ·0 | 37 30 41 ·1 | N.2 10 38 ·0 | N.1 38 55 ·7 | 26 ·1 | 21 56 ·0 |
| n. | 2 | 43 36 47 ·3 | 49 40 30 ·3 | N.1 6 19 ·8 | N.0 33 12 ·2 | 27 ·1 | 22 43 ·8 |
| es. | 3 | 55 42 8 ·0 | 61 41 57 ·7 | S.0 0 5 ·4 | S.0 33 11 ·8 | 28 ·1 | 23 32 ·2 |
| d. | 4 | 67 40 15 ·4 | 73 37 16 ·8 | 1 5 46 ·4 | 1 37 29 ·8 | 29 ·1 | ó |
| ır. | 5 | 79 33 17 ·1 | 85 28 31 ·8 | 2 8 2 ·7 | 2 37 7 ·4 | 0 ·5 | 0 20 ·9 |
| d. | 6 | 91 23 16 ·3 | 97 17 46 ·6 | 3 4 26 ·4 | 3 29 44 ·5 | 1 ·5 | 1 9 ·1 |
| . | 7 | 103 12 19 ·7 | 109 7 13 ·1 | 3 52 47 ·1 | 4 13 20 ·4 | 2 ·5 | 1 56 ·5 |
| . | 8 | 115 2 46 ·2 | 120 59 19 ·5 | 4 31 12 ·2 | 4 46 11 ·1 | 3 ·5 | 2 42 ·7 |
| n. | 9 | 126 57 14 ·9 | 132 56 56 ·3 | 4 58 7 ·2 | 5 6 51 ·3 | 4 ·5 | 3 27 ·6 |
| es. | 10 | 138 58 48 ·7 | 145 3 18 ·9 | 5 12 15 ·6 | 5 14 12 ·8 | 5 ·5 | 4 11 ·7 |
| d. | 11 | 151 10 54 ·9 | 157 22 5 ·6 | 5 12 36 ·9 | 5 7 23 ·3 | 6 ·5 | 4 55 ·4 |
| ır. | 12 | 163 37 20 ·1 | 169 57 8 ·2 | 4 58 28 ·8 | 4 45 51 ·1 | 7 ·5 | 5 39 ·5 |
| d. | 13 | 176 21 58 ·5 | 182 52 17 ·9 | 4 29 30 ·3 | 4 9 28 ·9 | 8 ·5 | 6 24 ·8 |
| | 14 | 189 28 31 ·5 | 196 11 0 ·4 | 3 45 51 ·8 | 3 18 47 ·9 | 9 ·5 | 7 12 ·4 |
| . | 15 | 203 0 0 ·8 | 209 55 42 ·9 | 2 48 30 ·2 | 2 15 15 ·2 | 10 ·5 | 8 3 ·2 |
| n. | 16 | 216 58 9 ·4 | 224 7 14 ·1 | 1 39 26 ·3 | S.1 1 31 ·8 | 11 ·5 | 8 58 ·0 |
| s. | 17 | 231 22 40 ·4 | 238 44 1 ·0 | S.0 22 5 ·5 | N.0 18 13 ·0 | 12 ·5 | 9 56 ·9 |
| d. | 18 | 246 10 36 ·9 | 253 41 38 ·1 | N.0 58 39 ·9 | 1 38 27 ·6 | 13 ·5 | 10 59 ·2 |
| ır. | 19 | 261 16 4 ·2 | 268 52 46 ·1 | 2 16 47 ·1 | 2 52 49 ·6 | 14 ·5 | 12 3 ·1 |
| d. | 20 | 276 30 28 ·4 | 284 7 52 ·5 | 3 25 49 ·9 | 3 55 6 ·6 | 15 ·5 | 13 6 ·2 |
| | 21 | 291 43 40 ·0 | 299 16 36 ·2 | 4 20 6 ·2 | 4 40 22 ·7 | 16 ·5 | 14 6 ·5 |
| . | 22 | 306 45 32 ·1 | 314 9 29 ·1 | 4 55 39 ·0 | 5 5 47 ·5 | 17 ·5 | 15 3 ·2 |
| n. | 23 | 321 27 38 ·7 | 328 39 24 ·6 | 5 10 48 ·0 | 5 10 48 ·5 | 18 ·5 | 15 56 ·1 |
| s. | 24 | 335 44 22 ·8 | 342 42 21 ·0 | 5 6 2 ·0 | 4 56 47 ·0 | 19 ·5 | 16 46 ·1 |
| l. | 25 | 349 33 17 ·7 | 356 17 20 ·1 | 4 43 25 ·3 | 4 26 19 ·9 | 20 ·5 | 17 34 ·1 |
| r. | 26 | 2 54 43 ·9 | 9 25 50 ·9 | 4 5 55 ·5 | 3 42 37 ·8 | 21 ·5 | 18 20 ·9 |
| l. | 27 | 15 51 7 ·3 | 22 11 3 ·0 | 3 16 51 ·0 | 2 49 0 ·1 | 22 ·5 | 19 7 ·3 |
| | 28 | 28 26 9 ·5 | 34 36 59 ·8 | 2 19 28 ·2 | 1 48 38 ·7 | 23 ·5 | 19 54 ·1 |
| . | 29 | 40 44 6 ·8 | 46 48 2 ·7 | 1 16 52 ·9 | N.0 44 32 ·5 | 24 ·5 | 20 41 ·4 |
| . | 30 | 52 49 18 ·5 | 58 48 23 ·6 | N.0 11 58 ·2 | S.0 20 30 ·4 | 25 ·5 | 21 29 ·4 |
| s. | 31 | 64 45 45 ·5 | 70 41 49 ·5 | S.0 52 34 ·1 | S.1 23 54 ·0 | 26 ·5 | 22 17 ·8 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 53 44·05 | N.13 59 53·8 | 83·37 |
| 1 | 1 55 46·89 | 14 8 14·0 | 82·65 |
| 2 | 1 57 49·80 | 14 16 29·9 | 81·95 |
| 3 | 1 59 52·78 | 14 24 41·6 | 81·25 |
| 4 | 2 1 55·84 | 14 32 49·1 | 80·52 |
| 5 | 2 3 58·97 | 14 40 52·2 | 79·80 |
| 6 | 2 6 2·18 | 14 48 51·0 | 79·07 |
| 7 | 2 8 5·47 | 14 56 45·4 | 78·33 |
| 8 | 2 10 8·84 | 15 4 35·4 | 77·60 |
| 9 | 2 12 12·28 | 15 12 21·0 | 76·85 |
| 10 | 2 14 15·80 | 15 20 2·1 | 76·10 |
| 11 | 2 16 19·40 | 15 27 38·7 | 75·35 |
| 12 | 2 18 23·08 | 15 35 10·8 | 74·58 |
| 13 | 2 20 26·84 | 15 42 38·3 | 73·82 |
| 14 | 2 22 30·68 | 15 50 1·2 | 73·05 |
| 15 | 2 24 34·61 | 15 57 19·5 | 72·27 |
| 16 | 2 26 38·61 | 16 4 33·1 | 71·48 |
| 17 | 2 28 42·70 | 16 11 42·0 | 70·70 |
| 18 | 2 30 46·86 | 16 18 46·2 | 69·90 |
| 19 | 2 32 51·11 | 16 25 45·6 | 69·10 |
| 20 | 2 34 55·44 | 16 32 40·2 | 68·30 |
| 21 | 2 36 59·85 | 16 39 30·0 | 67·50 |
| 22 | 2 39 4·34 | 16 46 15·0 | 66·68 |
| 23 | 2 41 8·91 | N.16 52 55·1 | 65·87 |
| | *MONDAY* 2. | | |
| 0 | 2 43 13·56 | N.16 59 30·3 | 65·03 |
| 1 | 2 45 18·30 | 17 6 0·5 | 64·22 |
| 2 | 2 47 23·11 | 17 12 25·8 | 63·38 |
| 3 | 2 49 28·01 | 17 18 46·1 | 62·55 |
| 4 | 2 51 32·98 | 17 25 1·4 | 61·70 |
| 5 | 2 53 38·04 | 17 31 11·6 | 60·85 |
| 6 | 2 55 43·17 | 17 37 16·7 | 60·02 |
| 7 | 2 57 48·38 | 17 43 16·8 | 59·15 |
| 8 | 2 59 53·67 | 17 49 11·7 | 58·28 |
| 9 | 3 1 59·04 | 17 55 1·4 | 57·43 |
| 10 | 3 4 4·48 | 18 0 46·0 | 56·57 |
| 11 | 3 6 10·00 | 18 6 25·4 | 55·68 |
| 12 | 3 8 15·60 | 18 11 59·5 | 54·82 |
| 13 | 3 10 21·27 | 18 17 28·4 | 53·93 |
| 14 | 3 12 27·01 | 18 22 52·0 | 53·05 |
| 15 | 3 14 32·83 | 18 28 10·3 | 52·17 |
| 16 | 3 16 38·71 | 18 33 23·3 | 51·27 |
| 17 | 3 18 44·67 | 18 38 30·9 | 50·38 |
| 18 | 3 20 50·70 | 18 43 33·2 | 49·47 |
| 19 | 3 22 56·80 | 18 48 30·0 | 48·58 |
| 20 | 3 25 2·96 | 18 53 21·5 | 47·67 |
| 21 | 3 27 9·19 | 18 58 7·5 | 46·75 |
| 22 | 3 29 15·48 | 19 2 48·0 | 45·85 |
| 23 | 3 31 21·84 | 19 7 23·1 | 44·93 |
| 24 | 3 33 28·26 | N.19 11 52·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 33 28·26 | N.19 11 52·7 | 44·02 |
| 1 | 3 35 34·74 | 19 16 16·8 | 43·08 |
| 2 | 3 37 41·29 | 19 20 35·3 | 42·15 |
| 3 | 3 39 47·89 | 19 24 48·2 | 41·23 |
| 4 | 3 41 54·55 | 19 28 55·6 | 40·30 |
| 5 | 3 44 1·26 | 19 32 57·4 | 39·37 |
| 6 | 3 46 8·02 | 19 36 53·6 | 38·42 |
| 7 | 3 48 14·84 | 19 40 44·1 | 37·48 |
| 8 | 3 50 21·71 | 19 44 29·0 | 36·55 |
| 9 | 3 52 28·63 | 19 48 8·3 | 35·58 |
| 10 | 3 54 35·60 | 19 51 41·8 | 34·65 |
| 11 | 3 56 42·61 | 19 55 9·7 | 33·70 |
| 12 | 3 58 49·67 | 19 58 31·9 | 32·75 |
| 13 | 4 0 56·77 | 20 1 48·4 | 31·78 |
| 14 | 4 3 3·91 | 20 4 59·1 | 30·83 |
| 15 | 4 5 11·08 | 20 8 4·1 | 29·87 |
| 16 | 4 7 18·29 | 20 11 3·3 | 28·90 |
| 17 | 4 9 25·54 | 20 13 56·7 | 27·93 |
| 18 | 4 11 32·82 | 20 16 44·3 | 26·98 |
| 19 | 4 13 40·13 | 20 19 26·2 | 26·02 |
| 20 | 4 15 47·47 | 20 22 2·3 | 25·03 |
| 21 | 4 17 54·83 | 20 24 32·5 | 24·07 |
| 22 | 4 20 2·22 | 20 26 56·9 | 23·10 |
| 23 | 4 22 9·64 | N.20 29 15·5 | 22·12 |
| | *WEDNESDAY* 4. | | |
| 0 | 4 24 17·07 | N.20 31 28·2 | 21·15 |
| 1 | 4 26 24·52 | 20 33 35·1 | 20·17 |
| 2 | 4 28 31·99 | 20 35 36·1 | 19·18 |
| 3 | 4 30 39·47 | 20 37 31·2 | 18·22 |
| 4 | 4 32 46·96 | 20 39 20·5 | 17·23 |
| 5 | 4 34 54·47 | 20 41 3·9 | 16·25 |
| 6 | 4 37 1·98 | 20 42 41·4 | 15·27 |
| 7 | 4 39 9·49 | 20 44 13·0 | 14·28 |
| 8 | 4 41 17·01 | 20 45 38·7 | 13·30 |
| 9 | 4 43 24·53 | 20 46 58·5 | 12·32 |
| 10 | 4 45 32·05 | 20 48 12·4 | 11·35 |
| 11 | 4 47 39·57 | 20 49 20·5 | 10·35 |
| 12 | 4 49 47·08 | 20 50 22·6 | 9·37 |
| 13 | 4 51 54·58 | 20 51 18·8 | 8·40 |
| 14 | 4 54 2·07 | 20 52 9·2 | 7·40 |
| 15 | 4 56 9·55 | 20 52 53·6 | 6·42 |
| 16 | 4 58 17·02 | 20 53 32·1 | 5·43 |
| 17 | 5 0 24·47 | 20 54 4·7 | 4·45 |
| 18 | 5 2 31·89 | 20 54 31·4 | 3·48 |
| 19 | 5 4 39·30 | 20 54 52·3 | 2·48 |
| 20 | 5 6 46·68 | 20 55 7·2 | 1·50 |
| 21 | 5 8 54·04 | 20 55 16·2 | 0·52 |
| 22 | 5 11 1·37 | 20 55 19·3 | 0·47 |
| 23 | 5 13 8·67 | 20 55 16·5 | 1·43 |
| 24 | 5 15 15·93 | N.20 55 7·9 | |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *THURSDAY* 5. | | | | *SATURDAY* 7. | | |
| h s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 15 ·93 | N.20 55 7 ·9 | 2 ·42 | 0 | 6 55 46 ·48 | N.18 56 26 ·5 | 46 ·88 |
| 23 ·16 | 20 54 53 ·4 | 3 ·42 | 1 | 6 57 49 ·81 | 18 51 45 ·2 | 47 ·73 |
| 30 ·35 | 20 54 32 ·9 | 4 ·38 | 2 | 6 59 53 ·03 | 18 46 58 ·8 | 48 ·57 |
| 37 ·50 | 20 54 6 ·6 | 5 ·35 | 3 | 7 1 56 ·13 | 18 42 7 ·4 | 49 ·40 |
| 44 ·61 | 20 53 34 ·5 | 6 ·33 | 4 | 7 3 59 ·11 | 18 37 11 ·0 | 50 ·25 |
| 51 ·68 | 20 52 56 ·5 | 7 ·30 | 5 | 7 6 1 ·98 | 18 32 9 ·5 | 51 ·07 |
| 58 ·70 | 20 52 12 ·7 | 8 ·28 | 6 | 7 8 4 ·73 | 18 27 3 ·1 | 51 ·88 |
| 5 ·68 | 20 51 23 ·0 | 9 ·25 | 7 | 7 10 7 ·37 | 18 21 51 ·8 | 52 ·70 |
| 12 ·60 | 20 50 27 ·5 | 10 ·23 | 8 | 7 12 9 ·89 | 18 16 35 ·6 | 53 ·52 |
| 19 ·47 | 20 49 26 ·1 | 11 ·18 | 9 | 7 14 12 ·29 | 18 11 14 ·5 | 54 ·33 |
| 26 ·28 | 20 48 19 ·0 | 12 ·15 | 10 | 7 16 14 ·57 | 18 5 48 ·5 | 55 ·13 |
| 33 ·04 | 20 47 6 ·1 | 13 ·12 | 11 | 7 18 16 ·74 | 18 0 17 ·7 | 55 ·93 |
| 39 ·74 | 20 45 47 ·4 | 14 ·08 | 12 | 7 20 18 ·78 | 17 54 42 ·1 | 56 ·73 |
| 46 ·38 | 20 44 22 ·9 | 15 ·03 | 13 | 7 22 20 ·71 | 17 49 1 ·7 | 57 ·52 |
| 52 ·95 | 20 42 52 ·7 | 16 ·00 | 14 | 7 24 22 ·52 | 17 43 16 ·6 | 58 ·30 |
| 59 ·46 | 20 41 16 ·7 | 16 ·95 | 15 | 7 26 24 ·21 | 17 37 26 ·8 | 59 ·08 |
| 5 ·90 | 20 39 35 ·0 | 17 ·92 | 16 | 7 28 25 ·78 | 17 31 32 ·3 | 59 ·87 |
| 12 ·28 | 20 37 47 ·5 | 18 ·85 | 17 | 7 30 27 ·23 | 17 25 33 ·1 | 60 ·63 |
| 18 ·58 | 20 35 54 ·4 | 19 ·82 | 18 | 7 32 28 ·57 | 17 19 29 ·3 | 61 ·40 |
| 24 ·81 | 20 33 55 ·5 | 20 ·77 | 19 | 7 34 29 ·78 | 17 13 20 ·9 | 62 ·17 |
| 30 ·97 | 20 31 50 ·9 | 21 ·70 | 20 | 7 36 30 ·88 | 17 7 7 ·9 | 62 ·92 |
| 37 ·05 | 20 29 40 ·7 | 22 ·63 | 21 | 7 38 31 ·86 | 17 0 50 ·4 | 63 ·67 |
| 43 ·05 | 20 27 24 ·9 | 23 ·60 | 22 | 7 40 32 ·72 | 16 54 28 ·4 | 64 ·42 |
| 48 ·97 | N.20 25 3 ·3 | 24 ·52 | 23 | 7 42 33 ·46 | N.16 48 1 ·9 | 65 ·17 |
| *FRIDAY* 6. | | | | *SUNDAY* 8. | | |
| 54 ·81 | N.20 22 36 ·2 | 25 ·47 | 0 | 7 44 34 ·08 | N.16 41 30 ·9 | 65 ·90 |
| 0 ·57 | 20 20 3 ·4 | 26 ·38 | 1 | 7 46 34 ·59 | 16 34 55 ·5 | 66 ·62 |
| 6 ·24 | 20 17 25 ·1 | 27 ·32 | 2 | 7 48 34 ·98 | 16 28 15 ·8 | 67 ·37 |
| 11 ·82 | 20 14 41 ·2 | 28 ·25 | 3 | 7 50 35 ·25 | 16 21 31 ·6 | 68 ·07 |
| 17 ·32 | 20 11 51 ·7 | 29 ·17 | 4 | 7 52 35 ·41 | 16 14 43 ·2 | 68 ·80 |
| 22 ·73 | 20 8 56 ·7 | 30 ·10 | 5 | 7 54 35 ·46 | 16 7 50 ·4 | 69 ·50 |
| 28 ·04 | 20 5 56 ·1 | 31 ·00 | 6 | 7 56 35 ·39 | 16 0 53 ·4 | 70 ·20 |
| 33 ·26 | 20 2 50 ·1 | 31 ·92 | 7 | 7 58 35 ·20 | 15 53 52 ·2 | 70 ·92 |
| 38 ·38 | 19 59 38 ·6 | 32 ·83 | 8 | 8 0 34 ·91 | 15 46 46 ·7 | 71 ·62 |
| 43 ·41 | 19 56 21 ·6 | 33 ·73 | 9 | 8 2 34 ·50 | 15 39 37 ·0 | 72 ·30 |
| 48 ·34 | 19 52 59 ·2 | 34 ·65 | 10 | 8 4 33 ·97 | 15 32 23 ·2 | 72 ·98 |
| 53 ·18 | 19 49 31 ·3 | 35 ·53 | 11 | 8 6 33 ·34 | 15 25 5 ·3 | 73 ·67 |
| 57 ·91 | 19 45 58 ·1 | 36 ·43 | 12 | 8 8 32 ·60 | 15 17 43 ·3 | 74 ·35 |
| 2 ·54 | 19 42 19 ·5 | 37 ·33 | 13 | 8 10 31 ·75 | 15 10 17 ·2 | 75 ·02 |
| 7 ·07 | 19 38 35 ·5 | 38 ·22 | 14 | 8 12 30 ·79 | 15 2 47 ·1 | 75 ·67 |
| 11 ·50 | 19 34 46 ·2 | 39 ·10 | 15 | 8 14 29 ·73 | 14 55 13 ·1 | 76 ·35 |
| 15 ·82 | 19 30 51 ·6 | 39 ·98 | 16 | 8 16 28 ·56 | 14 47 35 ·0 | 76 ·98 |
| 20 ·03 | 19 26 51 ·7 | 40 ·85 | 17 | 8 18 27 ·29 | 14 39 53 ·1 | 77 ·65 |
| 24 ·14 | 19 22 46 ·6 | 41 ·73 | 18 | 8 20 25 ·91 | 14 32 7 ·2 | 78 ·28 |
| 28 ·14 | 19 18 36 ·2 | 42 ·60 | 19 | 8 22 24 ·43 | 14 24 17 ·5 | 78 ·93 |
| 32 ·03 | 19 14 20 ·6 | 43 ·47 | 20 | 8 24 22 ·85 | 14 16 23 ·9 | 79 ·57 |
| 35 ·81 | 19 9 59 ·8 | 44 ·33 | 21 | 8 26 21 ·17 | 14 8 26 ·5 | 80 ·18 |
| 39 ·48 | 19 5 33 ·8 | 45 ·18 | 22 | 8 28 19 ·39 | 14 0 25 ·4 | 80 ·82 |
| 43 ·04 | 19 1 2 ·7 | 46 ·03 | 23 | 8 30 17 ·51 | 13 52 20 ·5 | 81 ·43 |
| 46 ·48 | N.18 56 26 ·5 | | 24 | 8 32 15 ·54 | N.13 44 11 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *MONDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 32 15·54 | N. 13 44 11·9 | 82·05 |
| 1 | 8 34 13·48 | 13 35 59·6 | 82·65 |
| 2 | 8 36 11·32 | 13 27 43·7 | 83·25 |
| 3 | 8 38 9·07 | 13 19 24·2 | 83·85 |
| 4 | 8 40 6·73 | 13 11 1·1 | 84·43 |
| 5 | 8 42 4·31 | 13 2 34·5 | 85·03 |
| 6 | 8 44 1·80 | 12 54 4·3 | 85·60 |
| 7 | 8 45 59·20 | 12 45 30·7 | 86·18 |
| 8 | 8 47 56·52 | 12 36 53·6 | 86·75 |
| 9 | 8 49 53·77 | 12 28 13·1 | 87·32 |
| 10 | 8 51 50·93 | 12 19 29·2 | 87·87 |
| 11 | 8 53 48·02 | 12 10 42·0 | 88·43 |
| 12 | 8 55 45·03 | 12 1 51·4 | 88·98 |
| 13 | 8 57 41·97 | 11 52 57·5 | 89·52 |
| 14 | 8 59 38·83 | 11 44 0·4 | 90·07 |
| 15 | 9 1 35·63 | 11 35 0·0 | 90·58 |
| 16 | 9 3 32·36 | 11 25 56·5 | 91·12 |
| 17 | 9 5 29·03 | 11 16 49·8 | 91·63 |
| 18 | 9 7 25·63 | 11 7 40·0 | 92·17 |
| 19 | 9 9 22·17 | 10 58 27·0 | 92·67 |
| 20 | 9 11 18·65 | 10 49 11·0 | 93·17 |
| 21 | 9 13 15·08 | 10 39 52·0 | 93·67 |
| 22 | 9 15 11·46 | 10 30 30·0 | 94·17 |
| 23 | 9 17 7·78 | N. 10 21 5·0 | 94·65 |
| | *TUESDAY* 10. | | |
| 0 | 9 19 4·05 | N. 10 11 37·1 | 95·13 |
| 1 | 9 21 0·27 | 10 2 6·3 | 95·62 |
| 2 | 9 22 56·45 | 9 52 32·6 | 96·08 |
| 3 | 9 24 52·59 | 9 42 56·1 | 96·55 |
| 4 | 9 26 48·69 | 9 33 16·8 | 97·00 |
| 5 | 9 28 44·75 | 9 23 34·8 | 97·47 |
| 6 | 9 30 40·78 | 9 13 50·0 | 97·92 |
| 7 | 9 32 36·77 | 9 4 2·5 | 98·35 |
| 8 | 9 34 32·73 | 8 54 12·4 | 98·80 |
| 9 | 9 36 28·67 | 8 44 19·6 | 99·22 |
| 10 | 9 38 24·59 | 8 34 24·3 | 99·65 |
| 11 | 9 40 20·48 | 8 24 26·4 | 100·08 |
| 12 | 9 42 16·35 | 8 14 25·9 | 100·48 |
| 13 | 9 44 12·21 | 8 4 23·0 | 100·90 |
| 14 | 9 46 8·05 | 7 54 17·6 | 101·32 |
| 15 | 9 48 3·88 | 7 44 9·7 | 101·70 |
| 16 | 9 49 59·71 | 7 33 59·5 | 102·10 |
| 17 | 9 51 55·53 | 7 23 46·9 | 102·48 |
| 18 | 9 53 51·34 | 7 13 32·0 | 102·87 |
| 19 | 9 55 47·16 | 7 3 14·8 | 103·25 |
| 20 | 9 57 42·99 | 6 52 55·3 | 103·62 |
| 21 | 9 59 38·82 | 6 42 33·6 | 103·97 |
| 22 | 10 1 34·65 | 6 32 9·8 | 104·33 |
| 23 | 10 3 30·50 | 6 21 43·8 | 104·70 |
| 24 | 10 5 26·37 | N. 6 11 15·6 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *WEDNESDAY* 11. | |
| | h m s | ° ′ ″ |
| 0 | 10 5 26·37 | N. 6 11 15·6 |
| 1 | 10 7 22·25 | 6 0 45·4 |
| 2 | 10 9 18·16 | 5 50 13·1 |
| 3 | 10 11 14·10 | 5 39 38·8 |
| 4 | 10 13 10·06 | 5 29 2·5 |
| 5 | 10 15 6·05 | 5 18 24·3 |
| 6 | 10 17 2·07 | 5 7 44·2 |
| 7 | 10 18 58·14 | 4 57 2·2 |
| 8 | 10 20 54·24 | 4 46 18·3 |
| 9 | 10 22 50·39 | 4 35 32·7 |
| 10 | 10 24 46·58 | 4 24 45·3 |
| 11 | 10 26 42·82 | 4 13 56·2 |
| 12 | 10 28 39·12 | 4 3 5·4 |
| 13 | 10 30 35·48 | 3 52 13·0 |
| 14 | 10 32 31·89 | 3 41 18·9 |
| 15 | 10 34 28·37 | 3 30 23·3 |
| 16 | 10 36 24·92 | 3 19 26·1 |
| 17 | 10 38 21·54 | 3 8 27·4 |
| 18 | 10 40 18·23 | 2 57 27·3 |
| 19 | 10 42 15·00 | 2 46 25·7 |
| 20 | 10 44 11·85 | 2 35 22·8 |
| 21 | 10 46 8·79 | 2 24 18·5 |
| 22 | 10 48 5·81 | 2 13 12·9 |
| 23 | 10 50 2·93 | N. 2 2 6·1 |
| | *THURSDAY* 12. | |
| 0 | 10 52 0·14 | N. 1 50 58·0 |
| 1 | 10 53 57·45 | 1 39 48·7 |
| 2 | 10 55 54·87 | 1 28 38·3 |
| 3 | 10 57 52·39 | 1 17 26·8 |
| 4 | 10 59 50·02 | 1 6 14·2 |
| 5 | 11 1 47·76 | 0 55 0·6 |
| 6 | 11 3 45·62 | 0 43 46·0 |
| 7 | 11 5 43·60 | 0 32 30·5 |
| 8 | 11 7 41·70 | 0 21 14·1 |
| 9 | 11 9 39·93 | N. 0 9 56·8 |
| 10 | 11 11 38·30 | S. 0 1 21·3 |
| 11 | 11 13 36·79 | 0 12 40·1 |
| 12 | 11 15 35·43 | 0 23 59·7 |
| 13 | 11 17 34·21 | 0 35 19·9 |
| 14 | 11 19 33·14 | 0 46 40·8 |
| 15 | 11 21 32·22 | 0 58 2·3 |
| 16 | 11 23 31·45 | 1 9 24·3 |
| 17 | 11 25 30·84 | 1 20 46·8 |
| 18 | 11 27 30·39 | 1 32 9·7 |
| 19 | 11 29 30·10 | 1 43 33·1 |
| 20 | 11 31 29·99 | 1 54 56·8 |
| 21 | 11 33 30·05 | 2 6 20·8 |
| 22 | 11 35 30·28 | 2 17 45·1 |
| 23 | 11 37 30·70 | 2 29 9·6 |
| 24 | 11 39 31·30 | S. 2 40 34·3 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *FRIDAY* 13. | | |
| m s | ° ′ ″ | ″ |
| 39 31 ·30 | S. 2 40 34 ·3 | 114 ·13 |
| 41 32 ·09 | 2 51 59 ·1 | 114 ·13 |
| 43 33 ·07 | 3 3 23 ·9 | 114 ·15 |
| 45 34 ·25 | 3 14 48 ·8 | 114 ·13 |
| 47 35 ·62 | 3 26 13 ·6 | 114 ·13 |
| 49 37 ·20 | 3 37 38 ·4 | 114 ·10 |
| 51 38 ·99 | 3 49 3 ·0 | 114 ·07 |
| 53 40 ·99 | 4 0 27 ·4 | 114 ·03 |
| 55 43 ·20 | 4 11 51 ·6 | 113 ·97 |
| 57 45 ·63 | 4 23 15 ·4 | 113 ·92 |
| 59 48 ·29 | 4 34 38 ·9 | 113 ·85 |
| 1 51 ·18 | 4 46 2 ·0 | 113 ·78 |
| 3 54 ·29 | 4 57 24 ·7 | 113 ·68 |
| 5 57 ·64 | 5 8 46 ·8 | 113 ·60 |
| 8 1 ·23 | 5 20 8 ·4 | 113 ·48 |
| 10 5 ·06 | 5 31 29 ·3 | 113 ·37 |
| 12 9 ·13 | 5 42 49 ·5 | 113 ·25 |
| 14 13 ·46 | 5 54 9 ·0 | 113 ·12 |
| 16 18 ·04 | 6 5 27 ·7 | 112 ·97 |
| 18 22 ·87 | 6 16 45 ·5 | 112 ·80 |
| 20 27 ·97 | 6 28 2 ·3 | 112 ·65 |
| 22 33 ·33 | 6 39 18 ·2 | 112 ·48 |
| 24 38 ·96 | 6 50 33 ·1 | 112 ·28 |
| 26 44 ·86 | S. 7 1 46 ·8 | 112 ·10 |
| *SATURDAY* 14. | | |
| 28 51 ·04 | S. 7 12 59 ·4 | 111 ·88 |
| 30 57 ·50 | 7 24 10 ·7 | 111 ·68 |
| 33 4 ·24 | 7 35 20 ·8 | 111 ·45 |
| 35 11 ·26 | 7 46 29 ·5 | 111 ·20 |
| 37 18 ·58 | 7 57 36 ·7 | 110 ·97 |
| 39 26 ·19 | 8 8 42 ·5 | 110 ·70 |
| 41 34 ·09 | 8 19 46 ·7 | 110 ·43 |
| 43 42 ·30 | 8 30 49 ·3 | 110 ·15 |
| 45 50 ·81 | 8 41 50 ·2 | 109 ·85 |
| 47 59 ·63 | 8 52 49 ·3 | 109 ·55 |
| 50 8 ·77 | 9 3 46 ·6 | 109 ·23 |
| 52 18 ·21 | 9 14 42 ·0 | 108 ·90 |
| 54 27 ·98 | 9 25 35 ·4 | 108 ·57 |
| 56 38 ·06 | 9 36 26 ·8 | 108 ·22 |
| 58 48 ·47 | 9 47 16 ·1 | 107 ·85 |
| 0 59 ·21 | 9 58 3 ·2 | 107 ·48 |
| 3 10 ·28 | 10 8 48 ·1 | 107 ·08 |
| 5 21 ·68 | 10 19 30 ·6 | 106 ·68 |
| 7 33 ·42 | 10 30 10 ·7 | 106 ·27 |
| 9 45 ·50 | 10 40 48 ·3 | 105 ·83 |
| 11 57 ·92 | 10 51 23 ·3 | 105 ·40 |
| 14 10 ·68 | 11 1 55 ·7 | 104 ·97 |
| 16 23 ·80 | 11 12 25 ·5 | 104 ·48 |
| 18 37 ·27 | 11 22 52 ·4 | 104 ·00 |
| 20 51 ·09 | S. 11 33 16 ·4 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| *SUNDAY* 15. | | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 20 51 ·09 | S. 11 33 16 ·4 | 103 ·52 |
| 1 | 13 23 5 ·27 | 11 43 37 ·5 | 103 ·00 |
| 2 | 13 25 19 ·81 | 11 53 55 ·5 | 102 ·50 |
| 3 | 13 27 34 ·71 | 12 4 10 ·5 | 101 ·95 |
| 4 | 13 29 49 ·98 | 12 14 22 ·2 | 101 ·42 |
| 5 | 13 32 5 ·62 | 12 24 30 ·7 | 100 ·85 |
| 6 | 13 34 21 ·62 | 12 34 35 ·8 | 100 ·28 |
| 7 | 13 36 37 ·99 | 12 44 37 ·5 | 99 ·68 |
| 8 | 13 38 54 ·74 | 12 54 35 ·6 | 99 ·10 |
| 9 | 13 41 11 ·86 | 13 4 30 ·2 | 98 ·48 |
| 10 | 13 43 29 ·37 | 13 14 21 ·1 | 97 ·85 |
| 11 | 13 45 47 ·25 | 13 24 8 ·2 | 97 ·20 |
| 12 | 13 48 5 ·51 | 13 33 51 ·4 | 96 ·55 |
| 13 | 13 50 24 ·16 | 13 43 30 ·7 | 95 ·88 |
| 14 | 13 52 43 ·19 | 13 53 6 ·0 | 95 ·20 |
| 15 | 13 55 2 ·60 | 14 2 37 ·2 | 94 ·48 |
| 16 | 13 57 22 ·41 | 14 12 4 ·1 | 93 ·78 |
| 17 | 13 59 42 ·60 | 14 21 26 ·8 | 93 ·05 |
| 18 | 14 2 3 ·18 | 14 30 45 ·1 | 92 ·30 |
| 19 | 14 4 24 ·15 | 14 39 58 ·9 | 91 ·55 |
| 20 | 14 6 45 ·52 | 14 49 8 ·2 | 90 ·78 |
| 21 | 14 9 7 ·28 | 14 58 12 ·9 | 89 ·98 |
| 22 | 14 11 29 ·43 | 15 7 12 ·8 | 89 ·17 |
| 23 | 14 13 51 ·98 | S. 15 16 7 ·8 | 88 ·37 |
| *MONDAY* 16. | | | |
| 0 | 14 16 14 ·92 | S. 15 24 58 ·0 | 87 ·53 |
| 1 | 14 18 38 ·26 | 15 33 43 ·2 | 86 ·67 |
| 2 | 14 21 1 ·99 | 15 42 23 ·2 | 85 ·82 |
| 3 | 14 23 26 ·12 | 15 50 58 ·1 | 84 ·93 |
| 4 | 14 25 50 ·65 | 15 59 27 ·7 | 84 ·03 |
| 5 | 14 28 15 ·57 | 16 7 51 ·9 | 83 ·13 |
| 6 | 14 30 40 ·89 | 16 16 10 ·7 | 82 ·20 |
| 7 | 14 33 6 ·60 | 16 24 23 ·9 | 81 ·27 |
| 8 | 14 35 32 ·71 | 16 32 31 ·5 | 80 ·32 |
| 9 | 14 37 59 ·21 | 16 40 33 ·4 | 79 ·33 |
| 10 | 14 40 26 ·11 | 16 48 29 ·4 | 78 ·35 |
| 11 | 14 42 53 ·39 | 16 56 19 ·5 | 77 ·35 |
| 12 | 14 45 21 ·07 | 17 4 3 ·6 | 76 ·33 |
| 13 | 14 47 49 ·14 | 17 11 41 ·6 | 75 ·30 |
| 14 | 14 50 17 ·59 | 17 19 13 ·4 | 74 ·25 |
| 15 | 14 52 46 ·43 | 17 26 38 ·9 | 73 ·18 |
| 16 | 14 55 15 ·66 | 17 33 58 ·0 | 72 ·12 |
| 17 | 14 57 45 ·27 | 17 41 10 ·7 | 71 ·02 |
| 18 | 15 0 15 ·26 | 17 48 16 ·8 | 69 ·92 |
| 19 | 15 2 45 ·62 | 17 55 16 ·3 | 68 ·80 |
| 20 | 15 5 16 ·36 | 18 2 9 ·1 | 67 ·65 |
| 21 | 15 7 47 ·48 | 18 8 55 ·0 | 66 ·50 |
| 22 | 15 10 18 ·96 | 18 15 34 ·0 | 65 ·33 |
| 23 | 15 12 50 ·81 | 18 22 6 ·0 | 64 ·17 |
| 24 | 15 15 23 ·03 | S. 18 28 31 ·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 15 23 ·03 | S. 18 28 31 ·0 | 62 ·97 |
| 1 | 15 17 55 ·61 | 18 34 48 ·8 | 61 ·75 |
| 2 | 15 20 28 ·55 | 18 40 59 ·3 | 60 ·53 |
| 3 | 15 23 1 ·84 | 18 47 2 ·5 | 59 ·28 |
| 4 | 15 25 35 ·49 | 18 52 58 ·2 | 58 ·05 |
| 5 | 15 28 9 ·48 | 18 58 46 ·5 | 56 ·77 |
| 6 | 15 30 43 ·81 | 19 4 27 ·1 | 55 ·50 |
| 7 | 15 33 18 ·48 | 19 10 0 ·1 | 54 ·20 |
| 8 | 15 35 53 ·49 | 19 15 25 ·3 | 52 ·90 |
| 9 | 15 38 28 ·82 | 19 20 42 ·7 | 51 ·58 |
| 10 | 15 41 4 ·48 | 19 25 52 ·2 | 50 ·25 |
| 11 | 15 43 40 ·46 | 19 30 53 ·7 | 48 ·90 |
| 12 | 15 46 16 ·75 | 19 35 47 ·1 | 47 ·55 |
| 13 | 15 48 53 ·35 | 19 40 32 ·4 | 46 ·17 |
| 14 | 15 51 30 ·26 | 19 45 9 ·4 | 44 ·80 |
| 15 | 15 54 7 ·47 | 19 49 38 ·2 | 43 ·40 |
| 16 | 15 56 44 ·96 | 19 53 58 ·6 | 42 ·00 |
| 17 | 15 59 22 ·75 | 19 58 10 ·6 | 40 ·58 |
| 18 | 16 2 0 ·81 | 20 2 14 ·1 | 39 ·15 |
| 19 | 16 4 39 ·15 | 20 6 9 ·0 | 37 ·72 |
| 20 | 16 7 17 ·75 | 20 9 55 ·3 | 36 ·27 |
| 21 | 16 9 56 ·61 | 20 13 32 ·9 | 34 ·82 |
| 22 | 16 12 35 ·73 | 20 17 1 ·8 | 33 ·33 |
| 23 | 16 15 15 ·10 | S. 20 20 21 ·8 | 31 ·87 |
| | *WEDNESDAY* 18. | | |
| 0 | 16 17 54 ·71 | S. 20 23 33 ·0 | 30 ·37 |
| 1 | 16 20 34 ·55 | 20 26 35 ·2 | 28 ·88 |
| 2 | 16 23 14 ·62 | 20 29 28 ·5 | 27 ·37 |
| 3 | 16 25 54 ·91 | 20 32 12 ·7 | 25 ·87 |
| 4 | 16 28 35 ·41 | 20 34 47 ·9 | 24 ·33 |
| 5 | 16 31 16 ·11 | 20 37 13 ·9 | 22 ·80 |
| 6 | 16 33 57 ·01 | 20 39 30 ·7 | 21 ·27 |
| 7 | 16 36 38 ·10 | 20 41 38 ·3 | 19 ·72 |
| 8 | 16 39 19 ·36 | 20 43 36 ·6 | 18 ·17 |
| 9 | 16 42 0 ·80 | 20 45 25 ·6 | 16 ·62 |
| 10 | 16 44 42 ·40 | 20 47 5 ·3 | 15 ·03 |
| 11 | 16 47 24 ·16 | 20 48 35 ·5 | 13 ·48 |
| 12 | 16 50 6 ·07 | 20 49 56 ·4 | 11 ·90 |
| 13 | 16 52 48 ·12 | 20 51 7 ·8 | 10 ·32 |
| 14 | 16 55 30 ·29 | 20 52 9 ·7 | 8 ·72 |
| 15 | 16 58 12 ·59 | 20 53 2 ·0 | 7 ·15 |
| 16 | 17 0 55 ·00 | 20 53 44 ·9 | 5 ·55 |
| 17 | 17 3 37 ·51 | 20 54 18 ·2 | 3 ·95 |
| 18 | 17 6 20 ·12 | 20 54 41 ·9 | 2 ·35 |
| 19 | 17 9 2 ·82 | 20 54 56 ·0 | 0 ·75 |
| 20 | 17 11 45 ·59 | 20 55 0 ·5 | 0 ·87 |
| 21 | 17 14 28 ·43 | 20 54 55 ·3 | 2 ·45 |
| 22 | 17 17 11 ·33 | 20 54 40 ·6 | 4 ·07 |
| 23 | 17 19 54 ·28 | 20 54 16 ·2 | 5 ·68 |
| 24 | 17 22 37 ·27 | S. 20 53 42 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. for |
|---|---|---|---|
| | *THURSDAY* 19. | | |
| | h m s | ° ′ ″ | |
| 0 | 17 22 37 ·27 | S. 20 53 42 ·1 | 7 |
| 1 | 17 25 20 ·30 | 20 52 58 ·4 | 8 |
| 2 | 17 28 3 ·35 | 20 52 5 ·0 | 10 |
| 3 | 17 30 46 ·41 | 20 51 2 ·0 | 12 |
| 4 | 17 33 29 ·48 | 20 49 49 ·3 | 13 |
| 5 | 17 36 12 ·54 | 20 48 27 ·0 | 15 |
| 6 | 17 38 55 ·59 | 20 46 55 ·0 | 16 |
| 7 | 17 41 38 ·62 | 20 45 13 ·4 | 18 |
| 8 | 17 44 21 ·61 | 20 43 22 ·2 | 20 |
| 9 | 17 47 4 ·57 | 20 41 21 ·4 | 21 |
| 10 | 17 49 47 ·48 | 20 39 11 ·1 | 23 |
| 11 | 17 52 30 ·33 | 20 36 51 ·2 | 24 |
| 12 | 17 55 13 ·12 | 20 34 21 ·7 | 26 |
| 13 | 17 57 55 ·83 | 20 31 42 ·7 | 28 |
| 14 | 18 0 38 ·46 | 20 28 54 ·3 | 29 |
| 15 | 18 3 20 ·99 | 20 25 56 ·4 | 31 |
| 16 | 18 6 3 ·43 | 20 22 49 ·1 | 32 |
| 17 | 18 8 45 ·75 | 20 19 32 ·4 | 34 |
| 18 | 18 11 27 ·96 | 20 16 6 ·3 | 35 |
| 19 | 18 14 10 ·04 | 20 12 31 ·0 | 37 |
| 20 | 18 16 51 ·98 | 20 8 46 ·4 | 38 |
| 21 | 18 19 33 ·78 | 20 4 52 ·6 | 40 |
| 22 | 18 22 15 ·44 | 20 0 49 ·6 | 42 |
| 23 | 18 24 56 ·93 | S. 19 56 37 ·5 | 43 |
| | *FRIDAY* 20. | | |
| 0 | 18 27 38 ·26 | S. 19 52 16 ·3 | 45 |
| 1 | 18 30 19 ·41 | 19 47 46 ·1 | 46 |
| 2 | 18 33 0 ·39 | 19 43 7 ·0 | 48 |
| 3 | 18 35 41 ·18 | 19 38 19 ·0 | 49 |
| 4 | 18 38 21 ·77 | 19 33 22 ·1 | 50 |
| 5 | 18 41 2 ·15 | 19 28 16 ·5 | 52 |
| 6 | 18 43 42 ·33 | 19 23 2 ·2 | 53 |
| 7 | 18 46 22 ·29 | 19 17 39 ·2 | 55 |
| 8 | 18 49 2 ·03 | 19 12 7 ·6 | 56 |
| 9 | 18 51 41 ·53 | 19 6 27 ·5 | 58 |
| 10 | 18 54 20 ·80 | 19 0 39 ·0 | 59 |
| 11 | 18 56 59 ·83 | 18 54 42 ·1 | 61 |
| 12 | 18 59 38 ·61 | 18 48 36 ·9 | 62 |
| 13 | 19 2 17 ·13 | 18 42 23 ·5 | 63 |
| 14 | 19 4 55 ·40 | 18 36 1 ·9 | 65 |
| 15 | 19 7 33 ·40 | 18 29 32 ·2 | 66 |
| 16 | 19 10 11 ·12 | 18 22 54 ·6 | 67 |
| 17 | 19 12 48 ·57 | 18 16 9 ·0 | 68 |
| 18 | 19 15 25 ·74 | 18 9 15 ·7 | 70 |
| 19 | 19 18 2 ·63 | 18 2 14 ·6 | 71 |
| 20 | 19 20 39 ·22 | 17 55 5 ·8 | 72 |
| 21 | 19 23 15 ·52 | 17 47 49 ·5 | 73 |
| 22 | 19 25 51 ·51 | 17 40 25 ·7 | 74 |
| 23 | 19 28 27 ·21 | 17 32 54 ·4 | 75 |
| 24 | 19 31 2 ·59 | S. 17 25 15 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| t Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SATURDAY* 21. | | | | *MONDAY* 23. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 31 2·59 | S. 17 25 15·9 | 77·62 | 0 | 21 28 37·87 | S. 9 26 59·3 | 116·13 |
| 33 37·66 | 17 17 30·2 | 78·82 | 1 | 21 30 56·37 | 9 15 22·5 | 116·55 |
| 36 12·41 | 17 9 37·3 | 79·98 | 2 | 21 33 14·54 | 9 3 43·2 | 116·93 |
| 38 46·85 | 17 1 37·4 | 81·13 | 3 | 21 35 32·39 | 8 52 1·6 | 117·30 |
| 41 20·96 | 16 53 30·6 | 82·27 | 4 | 21 37 49·92 | 8 40 17·8 | 117·67 |
| 43 54·74 | 16 45 17·0 | 83·40 | 5 | 21 40 7·13 | 8 28 31·8 | 118·02 |
| 46 28·19 | 16 36 56·6 | 84·52 | 6 | 21 42 24·03 | 8 16 43·7 | 118·35 |
| 49 1·32 | 16 28 29·5 | 85·60 | 7 | 21 44 40·62 | 8 4 53·6 | 118·67 |
| 51 34·11 | 16 19 55·9 | 86·68 | 8 | 21 46 56·90 | 7 53 1·6 | 118·97 |
| 54 6·56 | 16 11 15·8 | 87·73 | 9 | 21 49 12·87 | 7 41 7·8 | 119·25 |
| 56 38·66 | 16 2 29·4 | 88·78 | 10 | 21 51 28·54 | 7 29 12·3 | 119·53 |
| 59 10·43 | 15 53 36·7 | 89·80 | 11 | 21 53 43·91 | 7 17 15·1 | 119·78 |
| 1 41·85 | 15 44 37·9 | 90·82 | 12 | 21 55 58·98 | 7 5 16·4 | 120·03 |
| 4 12·92 | 15 35 33·0 | 91·82 | 13 | 21 58 13·76 | 6 53 16·2 | 120·27 |
| 6 43·65 | 15 26 22·1 | 92·78 | 14 | 22 0 28·24 | 6 41 14·6 | 120·48 |
| 9 14·02 | 15 17 5·4 | 93·75 | 15 | 22 2 42·44 | 6 29 11·7 | 120·68 |
| 11 44·04 | 15 7 42·9 | 94·68 | 16 | 22 4 56·36 | 6 17 7·6 | 120·88 |
| 14 13·71 | 14 58 14·8 | 95·62 | 17 | 22 7 9·99 | 6 5 2·3 | 121·05 |
| 16 43·03 | 14 48 41·1 | 96·53 | 18 | 22 9 23·34 | 5 52 56·0 | 121·23 |
| 19 11·99 | 14 39 1·9 | 97·43 | 19 | 22 11 36·42 | 5 40 48·6 | 121·37 |
| 21 40·60 | 14 29 17·3 | 98·30 | 20 | 22 13 49·23 | 5 28 40·4 | 121·52 |
| 24 8·85 | 14 19 27·5 | 99·17 | 21 | 22 16 1·77 | 5 16 31·3 | 121·65 |
| 26 36·74 | 14 9 32·5 | 100·00 | 22 | 22 18 14·04 | 5 4 21·4 | 121·75 |
| 29 4·28 | S. 13 59 32·5 | 100·83 | 23 | 22 20 26·05 | S. 4 52 10·9 | 121·85 |
| *SUNDAY* 22. | | | | *TUESDAY* 24. | | |
| 31 31·45 | S. 13 49 27·5 | 101·65 | 0 | 22 22 37·81 | S. 4 39 59·8 | 121·95 |
| 33 58·27 | 13 39 17·6 | 102·43 | 1 | 22 24 49·31 | 4 27 48·1 | 122·02 |
| 36 24·73 | 13 29 3·0 | 103·20 | 2 | 22 27 0·56 | 4 15 36·0 | 122·08 |
| 38 50·83 | 13 18 43·8 | 103·97 | 3 | 22 29 11·56 | 4 3 23·5 | 122·13 |
| 1 16·58 | 13 8 20·0 | 104·72 | 4 | 22 31 22·32 | 3 51 10·7 | 122·18 |
| 3 41·97 | 12 57 51·7 | 105·43 | 5 | 22 33 32·84 | 3 38 57·6 | 122·22 |
| 6 7·01 | 12 47 19·1 | 106·15 | 6 | 22 35 43·12 | 3 26 44·3 | 122·22 |
| 8 31·69 | 12 36 42·2 | 106·83 | 7 | 22 37 53·16 | 3 14 31·0 | 122·23 |
| 0 56·01 | 12 26 1·2 | 107·52 | 8 | 22 40 2·98 | 3 2 17·6 | 122·22 |
| 3 19·98 | 12 15 16·1 | 108·18 | 9 | 22 42 12·57 | 2 50 4·3 | 122·22 |
| 5 43·59 | 12 4 27·0 | 108·82 | 10 | 22 44 21·94 | 2 37 51·0 | 122·18 |
| 8 6·86 | 11 53 34·1 | 109·45 | 11 | 22 46 31·09 | 2 25 37·9 | 122·13 |
| 0 29·77 | 11 42 37·4 | 110·05 | 12 | 22 48 40·03 | 2 13 25·1 | 122·08 |
| 2 52·33 | 11 31 37·1 | 110·65 | 13 | 22 50 48·75 | 2 1 12·6 | 122·03 |
| 5 14·54 | 11 20 33·2 | 111·23 | 14 | 22 52 57·27 | 1 49 0·4 | 121·97 |
| 7 36·41 | 11 9 25·8 | 111·78 | 15 | 22 55 5·58 | 1 36 48·6 | 121·87 |
| 9 57·93 | 10 58 15·1 | 112·33 | 16 | 22 57 13·69 | 1 24 37·4 | 121·78 |
| 2 19·10 | 10 47 1·1 | 112·87 | 17 | 22 59 21·61 | 1 12 26·7 | 121·68 |
| 4 39·94 | 10 35 43·9 | 113·38 | 18 | 23 1 29·33 | 1 0 16·6 | 121·55 |
| 7 0·43 | 10 24 23·6 | 113·87 | 19 | 23 3 36·86 | 0 48 7·3 | 121·43 |
| 9 20·59 | 10 13 0·4 | 114·37 | 20 | 23 5 44·20 | 0 35 58·7 | 121·30 |
| 1 40·41 | 10 1 34·2 | 114·82 | 21 | 23 7 51·36 | 0 23 50·9 | 121·17 |
| 3 59·89 | 9 50 5·3 | 115·28 | 22 | 23 9 58·35 | S. 0 11 43·9 | 121·00 |
| 6 19·04 | 9 38 33·6 | 115·72 | 23 | 23 12 5·16 | N. 0 0 22·1 | 120·83 |
| 8 37·87 | S. 9 26 59·3 | | 24 | 23 14 11·79 | N. 0 12 27·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 14 11 ·79 | N.0 12 27 ·1 | 120 ·67 |
| 1 | 23 16 18 ·26 | 0 24 31 ·1 | 120 ·47 |
| 2 | 23 18 24 ·56 | 0 36 33 ·9 | 120 ·28 |
| 3 | 23 20 30 ·71 | 0 48 35 ·6 | 120 ·07 |
| 4 | 23 22 36 ·69 | 1 0 36 ·0 | 119 ·87 |
| 5 | 23 24 42 ·53 | 1 12 35 ·2 | 119 ·65 |
| 6 | 23 26 48 ·21 | 1 24 33 ·1 | 119 ·42 |
| 7 | 23 28 53 ·75 | 1 36 29 ·6 | 119 ·17 |
| 8 | 23 30 59 ·14 | 1 48 24 ·6 | 118 ·92 |
| 9 | 23 33 4 ·39 | 2 0 18 ·1 | 118 ·67 |
| 10 | 23 35 9 ·51 | 2 12 10 ·1 | 118 ·40 |
| 11 | 23 37 14 ·50 | 2 24 0 ·5 | 118 ·12 |
| 12 | 23 39 19 ·36 | 2 35 49 ·2 | 117 ·83 |
| 13 | 23 41 24 ·10 | 2 47 36 ·2 | 117 ·55 |
| 14 | 23 43 28 ·71 | 2 59 21 ·5 | 117 ·25 |
| 15 | 23 45 33 ·21 | 3 11 5 ·0 | 116 ·93 |
| 16 | 23 47 37 ·59 | 3 22 46 ·6 | 116 ·62 |
| 17 | 23 49 41 ·86 | 3 34 26 ·3 | 116 ·30 |
| 18 | 23 51 46 ·02 | 3 46 4 ·1 | 115 ·97 |
| 19 | 23 53 50 ·08 | 3 57 39 ·9 | 115 ·62 |
| 20 | 23 55 54 ·04 | 4 9 13 ·6 | 115 ·27 |
| 21 | 23 57 57 ·90 | 4 20 45 ·2 | 114 ·92 |
| 22 | 0 0 1 ·67 | 4 32 14 ·7 | 114 ·55 |
| 23 | 0 2 5 ·34 | N.4 43 42 ·0 | 114 ·18 |
| | *THURSDAY* 26. | | |
| 0 | 0 4 8 ·93 | N.4 55 7 ·1 | 113 ·80 |
| 1 | 0 6 12 ·43 | 5 6 29 ·9 | 113 ·42 |
| 2 | 0 8 15 ·85 | 5 17 50 ·4 | 113 ·02 |
| 3 | 0 10 19 ·20 | 5 29 8 ·5 | 112 ·62 |
| 4 | 0 12 22 ·47 | 5 40 24 ·2 | 112 ·22 |
| 5 | 0 14 25 ·67 | 5 51 37 ·5 | 111 ·80 |
| 6 | 0 16 28 ·80 | 6 2 48 ·3 | 111 ·37 |
| 7 | 0 18 31 ·86 | 6 13 56 ·5 | 110 ·93 |
| 8 | 0 20 34 ·86 | 6 25 2 ·1 | 110 ·50 |
| 9 | 0 22 37 ·80 | 6 36 5 ·1 | 110 ·05 |
| 10 | 0 24 40 ·69 | 6 47 5 ·4 | 109 ·60 |
| 11 | 0 26 43 ·52 | 6 58 3 ·0 | 109 ·13 |
| 12 | 0 28 46 ·31 | 7 8 57 ·8 | 108 ·67 |
| 13 | 0 30 49 ·05 | 7 19 49 ·8 | 108 ·20 |
| 14 | 0 32 51 ·74 | 7 30 39 ·0 | 107 ·72 |
| 15 | 0 34 54 ·39 | 7 41 25 ·3 | 107 ·23 |
| 16 | 0 36 57 ·01 | 7 52 8 ·7 | 106 ·73 |
| 17 | 0 38 59 ·59 | 8 2 49 ·1 | 106 ·23 |
| 18 | 0 41 2 ·13 | 8 13 26 ·5 | 105 ·73 |
| 19 | 0 43 4 ·65 | 8 24 0 ·9 | 105 ·22 |
| 20 | 0 45 7 ·14 | 8 34 32 ·2 | 104 ·68 |
| 21 | 0 47 9 ·60 | 8 45 0 ·3 | 104 ·18 |
| 22 | 0 49 12 ·04 | 8 55 25 ·4 | 103 ·63 |
| 23 | 0 51 14 ·46 | 9 5 47 ·2 | 103 ·10 |
| 24 | 0 53 16 ·87 | N.9 16 5 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. for |
|---|---|---|---|
| | *FRIDAY* 27. | | |
| | h m s | ° ′ ″ | |
| 0 | 0 53 16 ·87 | N. 9 16 5 ·8 | 102 |
| 1 | 0 55 19 ·26 | 9 26 21 ·2 | 102 |
| 2 | 0 57 21 ·64 | 9 36 33 ·2 | 101 |
| 3 | 0 59 24 ·01 | 9 46 41 ·9 | 100 |
| 4 | 1 1 26 ·38 | 9 56 47 ·3 | 100 |
| 5 | 1 3 28 ·74 | 10 6 49 ·2 | 99 |
| 6 | 1 5 31 ·09 | 10 16 47 ·7 | 99 |
| 7 | 1 7 33 ·45 | 10 26 42 ·6 | 98 |
| 8 | 1 9 35 ·81 | 10 36 34 ·1 | 97 |
| 9 | 1 11 38 ·18 | 10 46 22 ·0 | 97 |
| 10 | 1 13 40 ·55 | 10 56 6 ·3 | 96 |
| 11 | 1 15 42 ·93 | 11 5 47 ·0 | 96 |
| 12 | 1 17 45 ·33 | 11 15 24 ·0 | 95 |
| 13 | 1 19 47 ·74 | 11 24 57 ·3 | 94 |
| 14 | 1 21 50 ·16 | 11 34 26 ·9 | 94 |
| 15 | 1 23 52 ·61 | 11 43 52 ·7 | 93 |
| 16 | 1 25 55 ·07 | 11 53 14 ·7 | 93 |
| 17 | 1 27 57 ·55 | 12 2 32 ·9 | 92 |
| 18 | 1 30 0 ·06 | 12 11 47 ·2 | 91 |
| 19 | 1 32 2 ·60 | 12 20 57 ·6 | 91 |
| 20 | 1 34 5 ·16 | 12 30 4 ·0 | 90 |
| 21 | 1 36 7 ·75 | 12 39 6 ·6 | 89 |
| 22 | 1 38 10 ·37 | 12 48 5 ·1 | 89 |
| 23 | 1 40 13 ·03 | N.12 56 59 ·6 | 88 |
| | *SATURDAY* 28. | | |
| 0 | 1 42 15 ·72 | N.13 5 50 ·0 | 87 |
| 1 | 1 44 18 ·45 | 13 14 36 ·4 | 87 |
| 2 | 1 46 21 ·21 | 13 23 18 ·6 | 86 |
| 3 | 1 48 24 ·02 | 13 31 56 ·7 | 85 |
| 4 | 1 50 26 ·87 | 13 40 30 ·6 | 84 |
| 5 | 1 52 29 ·76 | 13 49 0 ·3 | 84 |
| 6 | 1 54 32 ·69 | 13 57 25 ·7 | 83 |
| 7 | 1 56 35 ·66 | 14 5 46 ·9 | 82 |
| 8 | 1 58 38 ·69 | 14 14 3 ·8 | 82 |
| 9 | 2 0 41 ·76 | 14 22 16 ·3 | 81 |
| 10 | 2 2 44 ·88 | 14 30 24 ·4 | 80 |
| 11 | 2 4 48 ·05 | 14 38 28 ·2 | 79 |
| 12 | 2 6 51 ·27 | 14 46 27 ·5 | 79 |
| 13 | 2 8 54 ·54 | 14 54 22 ·3 | 78 |
| 14 | 2 10 57 ·87 | 15 2 12 ·7 | 77 |
| 15 | 2 13 1 ·25 | 15 9 58 ·6 | 76 |
| 16 | 2 15 4 ·69 | 15 17 39 ·9 | 76 |
| 17 | 2 17 8 ·19 | 15 25 16 ·6 | 75 |
| 18 | 2 19 11 ·74 | 15 32 48 ·7 | 74 |
| 19 | 2 21 15 ·35 | 15 40 16 ·2 | 73 |
| 20 | 2 23 19 ·01 | 15 47 39 ·1 | 73 |
| 21 | 2 25 22 ·74 | 15 54 57 ·2 | 72 |
| 22 | 2 27 26 ·53 | 16 2 10 ·7 | 71 |
| 23 | 2 29 30 ·38 | 16 9 19 ·4 | 70 |
| 24 | 2 31 34 ·29 | N.16 16 23 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SUNDAY* 29. | | | | *MONDAY* 30. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 2 31 34 ·29 | N.16 16 23 ·4 | 69 ·87 | 0 | 3 21 27 ·27 | N.18 41 5 ·1 | 49 ·50 |
| 2 33 38 ·26 | 16 23 22 ·6 | 69 ·05 | 1 | 3 23 32 ·77 | 18 46 2 ·1 | 48 ·60 |
| 2 35 42 ·30 | 16 30 16 ·9 | 68 ·27 | 2 | 3 25 38 ·32 | 18 50 53 ·7 | 47 ·70 |
| 2 37 46 ·40 | 16 37 6 ·5 | 67 ·43 | 3 | 3 27 43 ·94 | 18 55 39 ·9 | 46 ·80 |
| 2 39 50 ·56 | 16 43 51 ·1 | 66 ·63 | 4 | 3 29 49 ·61 | 19 0 20 ·7 | 45 ·90 |
| 2 41 54 ·78 | 16 50 30 ·9 | 65 ·80 | 5 | 3 31 55 ·34 | 19 4 56 ·1 | 45 ·00 |
| 2 43 59 ·07 | 16 57 5 ·7 | 64 ·98 | 6 | 3 34 1 ·13 | 19 9 26 ·1 | 44 ·08 |
| 2 46 3 ·43 | 17 3 35 ·6 | 64 ·17 | 7 | 3 36 6 ·98 | 19 13 50 ·6 | 43 ·17 |
| 2 48 7 ·85 | 17 10 0 ·6 | 63 ·32 | 8 | 3 38 12 ·88 | 19 18 9 ·6 | 42 ·25 |
| 2 50 12 ·33 | 17 16 20 ·5 | 62 ·50 | 9 | 3 40 18 ·83 | 19 22 23 ·1 | 41 ·33 |
| 2 52 16 ·88 | 17 22 35 ·5 | 61 ·65 | 10 | 3 42 24 ·84 | 19 26 31 ·1 | 40 ·42 |
| 2 54 21 ·49 | 17 28 45 ·4 | 60 ·80 | 11 | 3 44 30 ·90 | 19 30 33 ·6 | 39 ·48 |
| 2 56 26 ·17 | 17 34 50 ·2 | 59 ·97 | 12 | 3 46 37 ·01 | 19 34 30 ·5 | 38 ·57 |
| 2 58 30 ·91 | 17 40 50 ·0 | 59 ·10 | 13 | 3 48 43 ·17 | 19 38 21 ·9 | 37 ·63 |
| 3 0 35 ·72 | 17 46 44 ·6 | 58 ·25 | 14 | 3 50 49 ·38 | 19 42 7 ·7 | 36 ·70 |
| 3 2 40 ·59 | 17 52 34 ·1 | 57 ·40 | 15 | 3 52 55 ·64 | 19 45 47 ·9 | 35 ·77 |
| 3 4 45 ·52 | 17 58 18 ·5 | 56 ·52 | 16 | 3 55 1 ·95 | 19 49 22 ·5 | 34 ·83 |
| 3 6 50 ·52 | 18 3 57 ·6 | 55 ·67 | 17 | 3 57 8 ·30 | 19 52 51 ·5 | 33 ·88 |
| 3 8 55 ·58 | 18 9 31 ·6 | 54 ·80 | 18 | 3 59 14 ·69 | 19 56 14 ·8 | 32 ·95 |
| 3 11 0 ·71 | 18 15 0 ·4 | 53 ·92 | 19 | 4 1 21 ·13 | 19 59 32 ·5 | 32 ·00 |
| 3 13 5 ·90 | 18 20 23 ·9 | 53 ·03 | 20 | 4 3 27 ·61 | 20 2 44 ·5 | 31 ·07 |
| 3 15 11 ·15 | 18 25 42 ·1 | 52 ·17 | 21 | 4 5 34 ·12 | 20 5 50 ·9 | 30 ·12 |
| 3 17 16 ·46 | 18 30 55 ·1 | 51 ·28 | 22 | 4 7 40 ·68 | 20 8 51 ·6 | 29 ·17 |
| 3 19 21 ·83 | 18 36 2 ·8 | 50 ·38 | 23 | 4 9 47 ·27 | 20 11 46 ·6 | 28 ·22 |
| 3 21 27 ·27 | N.18 41 5 ·1 | | 24 | 4 11 53 ·90 | N.20 14 35 ·9 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ● New Moon | 4 13 7 ·8 |
| ☽ *First Quarter* | 12 15 43 ·2 |
| ○ Full Moon | 19 11 18 ·0 |
| ☾ *Last Quarter* | 26 3 27 ·0 |

| | d h |
|---|---|
| ☾ Apogee | 6 11 |
| ☾ Perigee | 19 17 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | α Aquilæ | W. | 90 28 14 | 3291 | 91 52 36 | 3301 | 93 16 47 | 3309 | 94 40 48 |
| | Mars | W. | 73 27 32 | 3088 | 74 55 56 | 3096 | 76 24 10 | 3103 | 77 52 16 |
| | Saturn | W. | 72 27 44 | 2905 | 73 59 56 | 2913 | 75 31 58 | 2921 | 77 3 50 |
| | Fomalhaut | W. | 62 48 35 | 3494 | 64 9 6 | 3487 | 65 29 45 | 3480 | 66 50 32 |
| | α Pegasi | W. | 42 45 7 | 3194 | 44 11 23 | 3186 | 45 37 49 | 3178 | 47 4 24 |
| | Sun | E. | 39 28 14 | 3233 | 38 2 44 | 3242 | 36 37 25 | 3251 | 35 12 16 |
| 7 | Sun | W. | 26 56 17 | 3452 | 28 17 35 | 3451 | 29 38 54 | 3449 | 31 0 15 |
| | Regulus | E. | 44 39 25 | 3122 | 43 11 42 | 3124 | 41 44 1 | 3126 | 40 16 23 |
| | Spica ♍ | E. | 98 19 16 | 3078 | 96 50 39 | 3077 | 95 22 1 | 3076 | 93 53 22 |
| 8 | Sun | W. | 37 47 35 | 3435 | 39 9 12 | 3433 | 40 30 51 | 3430 | 41 52 34 |
| | Regulus | E. | 32 58 59 | 3143 | 31 31 42 | 3147 | 30 4 29 | 3153 | 28 37 23 |
| | Spica ♍ | E. | 86 29 47 | 3067 | 85 0 57 | 3065 | 83 32 4 | 3062 | 82 3 8 |
| 9 | Sun | W. | 48 42 16 | 3403 | 50 4 29 | 3397 | 51 26 49 | 3392 | 52 49 15 |
| | Pollux | W. | 19 39 40 | 3821 | 20 54 21 | 3714 | 22 10 53 | 3627 | 23 28 58 |
| | Spica ♍ | E. | 74 37 21 | 3038 | 73 7 55 | 3033 | 71 38 23 | 3028 | 70 8 45 |
| | Antares | E. | 119 58 12 | 3065 | 118 29 20 | 3060 | 117 0 21 | 3053 | 115 31 14 |
| 10 | Sun | W. | 59 43 24 | 3347 | 61 6 41 | 3339 | 62 30 8 | 3330 | 63 53 45 |
| | Pollux | W. | 30 16 25 | 3307 | 31 40 28 | 3273 | 33 5 11 | 3242 | 34 30 31 |
| | Spica ♍ | E. | 62 38 35 | 2988 | 61 8 7 | 2979 | 59 37 28 | 2971 | 58 6 39 |
| | Antares | E. | 108 3 33 | 3010 | 106 33 32 | 3002 | 105 3 21 | 2993 | 103 32 59 |
| 11 | Sun | W. | 70 54 48 | 3265 | 72 19 40 | 3254 | 73 44 45 | 3242 | 75 10 5 |
| | Pollux | W. | 41 45 5 | 3092 | 43 13 24 | 3070 | 44 42 10 | 3051 | 46 11 20 |
| | Spica ♍ | E. | 50 29 38 | 2913 | 48 57 35 | 2902 | 47 25 18 | 2891 | 45 52 47 |
| | Antares | E. | 95 58 10 | 2934 | 94 26 34 | 2922 | 92 54 43 | 2910 | 91 22 37 |
| 12 | Sun | W. | 82 20 44 | 3158 | 83 47 43 | 3143 | 85 15 0 | 3128 | 86 42 36 |
| | Pollux | W. | 53 43 15 | 2935 | 55 14 49 | 2916 | 56 46 47 | 2898 | 58 19 9 |
| | Regulus | W. | 16 49 24 | 3061 | 18 18 21 | 3010 | 19 48 22 | 2965 | 21 19 19 |
| | Spica ♍ | E. | 38 6 13 | 2814 | 36 32 3 | 2800 | 34 57 35 | 2785 | 33 22 48 |
| | Antares | E. | 83 38 12 | 2834 | 82 4 28 | 2820 | 80 30 26 | 2806 | 78 56 6 |
| 13 | Sun | W. | 94 5 34 | 3027 | 95 35 13 | 3010 | 97 5 14 | 2992 | 98 35 37 |
| | Regulus | W. | 29 4 53 | 2779 | 30 39 48 | 2754 | 32 15 16 | 2731 | 33 51 15 |
| | Spica ♍ | E. | 25 23 58 | 2693 | 23 47 9 | 2678 | 22 9 59 | 2662 | 20 32 28 |
| | Antares | E. | 70 59 32 | 2715 | 69 23 12 | 2699 | 67 46 30 | 2683 | 66 9 27 |
| 14 | Sun | W. | 106 13 26 | 2878 | 107 46 13 | 2859 | 109 19 25 | 2839 | 110 53 2 |
| | Regulus | W. | 41 58 42 | 2599 | 43 37 39 | 2577 | 45 17 5 | 2557 | 46 56 59 |
| | Antares | E. | 57 58 32 | 2582 | 56 19 12 | 2565 | 54 39 29 | 2548 | 52 59 22 |
| | α Aquilæ | E. | 109 21 50 | 3016 | 107 51 57 | 2989 | 106 21 30 | 2963 | 104 50 31 |
| 15 | Sun | W. | 118 47 33 | 2720 | 120 23 46 | 2701 | 122 0 25 | 2681 | 123 37 30 |
| | Regulus | W. | 55 23 39 | 2435 | 57 6 24 | 2415 | 58 49 37 | 2396 | 60 33 18 |
| | Antares | E. | 44 32 56 | 2448 | 42 50 30 | 2432 | 41 7 41 | 2418 | 39 24 32 |
| | α Aquilæ | E. | 97 7 51 | 2822 | 95 33 52 | 2800 | 93 59 24 | 2780 | 92 24 31 |
| | Saturn | E. | 115 38 24 | 2426 | 113 55 26 | 2406 | 112 12 0 | 2387 | 110 28 7 |
| | Mars | E. | 120 26 18 | 2588 | 118 47 7 | 2567 | 117 7 26 | 2546 | 115 27 16 |
| 16 | Regulus | W. | 69 18 39 | 2282 | 71 5 5 | 2264 | 72 51 57 | 2247 | 74 39 15 |
| | Spica ♍ | W. | 15 16 30 | 2264 | 17 3 22 | 2246 | 18 50 41 | 2228 | 20 38 27 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| Aquilæ | W. | 96 4 37 | 3328 | 97 28 16 | 3338 | 98 51 43 | 3349 | 100 14 57 | 3360 |
| rs | W. | 79 20 13 | 3118 | 80 48 1 | 3124 | 82 15 41 | 3132 | 83 43 12 | 3138 |
| turn | W. | 78 35 33 | 2935 | 80 7 8 | 2942 | 81 38 34 | 2949 | 83 9 51 | 2955 |
| malhaut | W. | 68 11 26 | 3469 | 69 32 25 | 3465 | 70 53 28 | 3462 | 72 14 35 | 3460 |
| Pegasi | W. | 48 31 7 | 3168 | 49 57 55 | 3163 | 51 24 48 | 3159 | 52 51 46 | 3158 |
| N | E. | 33 47 17 | 3268 | 32 22 28 | 3276 | 30 57 48 | 3285 | 29 33 19 | 3292 |
| N | W. | 32 21 39 | 3446 | 33 43 4 | 3443 | 35 4 32 | 3441 | 36 26 2 | 3439 |
| gulus | E. | 38 48 48 | 3131 | 37 21 16 | 3134 | 35 53 47 | 3136 | 34 26 21 | 3139 |
| ica ♍ | E. | 92 24 43 | 3074 | 90 56 2 | 3073 | 89 27 19 | 3071 | 87 58 34 | 3069 |
| N | W. | 43 14 21 | 3423 | 44 36 12 | 3418 | 45 58 8 | 3413 | 47 20 10 | 3409 |
| gulus | E. | 27 10 24 | 3165 | 25 43 33 | 3174 | 24 16 53 | 3185 | 22 50 26 | 3199 |
| ca ♍ | E. | 80 34 8 | 3055 | 79 5 3 | 3052 | 77 35 54 | 3048 | 76 6 40 | 3043 |
| N | W. | 54 11 48 | 3378 | 55 34 30 | 3372 | 56 57 19 | 3364 | 58 20 17 | 3356 |
| llux | W. | 24 48 23 | 3490 | 26 8 58 | 3435 | 27 30 35 | 3387 | 28 53 6 | 3345 |
| ca ♍ | E. | 68 38 59 | 3016 | 67 9 6 | 3010 | 65 39 5 | 3002 | 64 8 55 | 2994 |
| tares | E. | 114 1 59 | 3040 | 112 32 36 | 3033 | 111 3 4 | 3026 | 109 33 23 | 3018 |
| N | W. | 65 17 34 | 3310 | 66 41 34 | 3300 | 68 5 46 | 3288 | 69 30 11 | 3278 |
| llux | W. | 35 56 25 | 3186 | 37 22 51 | 3160 | 38 49 48 | 3137 | 40 17 13 | 3115 |
| ca ♍ | E. | 56 35 39 | 2953 | 55 4 27 | 2944 | 53 33 4 | 2933 | 52 1 27 | 2924 |
| tares | E. | 102 2 26 | 2974 | 100 31 41 | 2965 | 99 0 44 | 2954 | 97 29 34 | 2943 |
| N | W. | 76 35 41 | 3215 | 78 1 32 | 3202 | 79 27 39 | 3188 | 80 54 3 | 3173 |
| lux | W. | 47 40 55 | 3011 | 49 10 54 | 2992 | 50 41 17 | 2973 | 52 12 4 | 2954 |
| ca ♍ | E. | 44 20 0 | 2866 | 42 46 58 | 2854 | 41 13 40 | 2841 | 39 40 5 | 2828 |
| tares | E. | 89 50 16 | 2887 | 88 17 40 | 2873 | 86 44 47 | 2861 | 85 11 38 | 2848 |
| N | W. | 88 10 31 | 3096 | 89 38 46 | 3079 | 91 7 21 | 3062 | 92 36 17 | 3045 |
| lux | W. | 59 51 54 | 2861 | 61 25 3 | 2842 | 62 58 36 | 2823 | 64 32 34 | 2805 |
| gulus | W. | 22 51 5 | 2892 | 24 23 34 | 2860 | 25 56 44 | 2832 | 27 30 31 | 2805 |
| ca ♍ | E. | 31 47 42 | 2756 | 30 12 16 | 2741 | 28 36 31 | 2726 | 27 0 25 | 2710 |
| tares | E. | 77 21 27 | 2776 | 75 46 28 | 2762 | 74 11 10 | 2746 | 72 35 31 | 2731 |
| N | W. | 100 6 24 | 2954 | 101 37 34 | 2936 | 103 9 7 | 2917 | 104 41 4 | 2898 |
| gulus | W. | 35 27 45 | 2685 | 37 4 45 | 2663 | 38 42 15 | 2641 | 40 20 14 | 2620 |
| ca ♍ | E. | 18 54 33 | 2629 | 17 16 17 | 2612 | 15 37 38 | 2595 | 13 58 36 | 2580 |
| tares | E. | 64 32 1 | 2649 | 62 54 13 | 2632 | 61 16 2 | 2616 | 59 37 29 | 2599 |
| N | W. | 112 27 4 | 2800 | 114 1 32 | 2779 | 115 36 27 | 2760 | 117 11 47 | 2741 |
| gulus | W. | 48 37 22 | 2515 | 50 18 14 | 2495 | 51 59 34 | 2475 | 53 41 22 | 2455 |
| tares | E. | 51 18 51 | 2514 | 49 37 57 | 2497 | 47 56 40 | 2481 | 46 15 0 | 2464 |
| Aquilæ | E. | 103 19 0 | 2913 | 101 46 58 | 2889 | 100 14 25 | 2866 | 98 41 23 | 2843 |
| N | W. | 125 15 1 | 2642 | 126 52 59 | 2624 | 128 31 22 | 2604 | 130 10 11 | 2585 |
| gulus | W. | 62 17 28 | 2357 | 64 2 5 | 2338 | 65 47 9 | 2319 | 67 32 41 | 2301 |
| tares | E. | 37 41 1 | 2389 | 35 57 10 | 2376 | 34 13 1 | 2364 | 32 28 35 | 2354 |
| Aquilæ | E. | 90 49 11 | 2742 | 89 13 27 | 2725 | 87 37 20 | 2708 | 86 0 50 | 2691 |
| urn | E. | 108 43 47 | 2349 | 106 58 59 | 2330 | 105 13 43 | 2312 | 103 28 1 | 2294 |
| rs | E. | 113 46 37 | 2505 | 112 5 30 | 2484 | 110 23 54 | 2464 | 108 41 50 | 2444 |
| gulus | W. | 76 26 58 | 2213 | 78 15 6 | 2196 | 80 3 39 | 2181 | 81 52 36 | 2165 |
| ica ♍ | W. | 22 26 39 | 2193 | 24 15 17 | 2177 | 26 4 19 | 2161 | 27 53 45 | 2145 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III^h. | P. L. of diff. | VI^h. | P. L. of diff. | IX^h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 16 | Antares | E. | 30 43 54 | 2344 | 28 58 59 | 2337 | 27 13 54 | 2333 | 25 28 42 | 2331 |
| | α Aquilæ | E. | 84 23 58 | 2677 | 82 46 47 | 2662 | 81 9 16 | 2649 | 79 31 28 | 2638 |
| | Saturn | E. | 101 41 53 | 2275 | 99 55 17 | 2258 | 98 8 16 | 2240 | 96 20 48 | 2224 |
| | Mars | E. | 106 59 18 | 2425 | 105 16 19 | 2406 | 103 32 53 | 2387 | 101 49 0 | 2370 |
| | Fomalhaut | E. | 112 18 16 | 2818 | 110 44 11 | 2787 | 109 9 26 | 2757 | 107 34 2 | 2731 |
| 17 | Regulus | W. | 83 41 56 | 2150 | 85 31 39 | 2136 | 87 21 44 | 2122 | 89 12 10 | 2109 |
| | Spica ♍ | W. | 29 43 35 | 2130 | 31 33 48 | 2117 | 33 24 22 | 2102 | 35 15 19 | 2089 |
| | α Aquilæ | E. | 71 19 3 | 2599 | 69 40 7 | 2596 | 68 1 6 | 2596 | 66 22 5 | 2596 |
| | Saturn | E. | 87 17 24 | 2145 | 85 27 33 | 2131 | 83 37 21 | 2117 | 81 46 48 | 2104 |
| | Mars | E. | 93 3 21 | 2287 | 91 17 2 | 2272 | 89 30 21 | 2258 | 87 43 19 | 2244 |
| | Fomalhaut | E. | 99 28 40 | 2615 | 97 50 6 | 2597 | 96 11 7 | 2580 | 94 31 44 | 2564 |
| 18 | Regulus | W. | 98 29 7 | 2052 | 100 21 21 | 2042 | 102 13 50 | 2034 | 104 6 32 | 2025 |
| | Spica ♍ | W. | 44 34 52 | 2030 | 46 27 39 | 2021 | 48 20 41 | 2012 | 50 13 57 | 2003 |
| | α Aquilæ | E. | 58 8 19 | 2638 | 56 30 16 | 2655 | 54 52 36 | 2677 | 53 15 25 | 2703 |
| | Saturn | E. | 72 29 21 | 2048 | 70 37 2 | 2039 | 68 44 29 | 2031 | 66 51 43 | 2024 |
| | Mars | E. | 78 43 29 | 2186 | 76 54 41 | 2178 | 75 5 40 | 2170 | 73 16 27 | 2162 |
| | Fomalhaut | E. | 86 10 5 | 2507 | 84 29 2 | 2501 | 82 47 50 | 2496 | 81 6 31 | 2493 |
| | α Pegasi | E. | 103 56 33 | 2182 | 102 7 39 | 2171 | 100 18 27 | 2159 | 98 28 58 | 2150 |
| 19 | Spica ♍ | W. | 59 43 9 | 1973 | 61 37 25 | 1970 | 63 31 47 | 1967 | 65 26 14 | 1965 |
| | Antares | W. | 15 15 26 | 2263 | 17 2 20 | 2202 | 18 50 44 | 2158 | 20 40 15 | 2125 |
| | Saturn | E. | 57 25 28 | 1999 | 55 31 52 | 1998 | 53 38 14 | 1996 | 51 44 34 | 1997 |
| | Mars | E. | 64 8 1 | 2140 | 62 18 3 | 2138 | 60 28 2 | 2138 | 58 38 1 | 2139 |
| | Fomalhaut | E. | 72 39 40 | 2505 | 70 58 34 | 2513 | 69 17 39 | 2525 | 67 37 0 | 2538 |
| | α Pegasi | E. | 89 18 28 | 2118 | 87 27 56 | 2115 | 85 37 19 | 2112 | 83 46 38 | 2111 |
| 20 | Spica ♍ | W. | 74 58 53 | 1966 | 76 53 21 | 1969 | 78 47 44 | 1972 | 80 42 2 | 1976 |
| | Antares | W. | 29 57 7 | 2046 | 31 49 29 | 2041 | 33 41 59 | 2038 | 35 34 34 | 2036 |
| | Saturn | E. | 42 16 51 | 2014 | 40 23 38 | 2021 | 38 30 37 | 2030 | 36 37 50 | 2041 |
| | Mars | E. | 49 28 52 | 2163 | 47 39 28 | 2171 | 45 50 17 | 2182 | 44 1 22 | 2194 |
| | Fomalhaut | E. | 59 19 38 | 2648 | 57 41 48 | 2680 | 56 4 41 | 2717 | 54 28 23 | 2757 |
| | α Pegasi | E. | 74 33 28 | 2124 | 72 43 5 | 2130 | 70 52 51 | 2137 | 69 2 48 | 2145 |
| | Jupiter | E. | 117 3 14 | 2026 | 115 10 20 | 2028 | 113 17 30 | 2032 | 111 24 45 | 2035 |
| 21 | Spica ♍ | W. | 90 11 29 | 2009 | 92 4 49 | 2018 | 93 57 56 | 2027 | 95 50 48 | 2037 |
| | Antares | W. | 44 57 22 | 2050 | 46 49 39 | 2056 | 48 41 46 | 2062 | 50 33 43 | 2071 |
| | Saturn | E. | 27 19 6 | 2128 | 25 28 50 | 2157 | 23 39 17 | 2190 | 21 50 35 | 2231 |
| | Mars | E. | 35 2 28 | 2290 | 33 16 14 | 2318 | 31 30 41 | 2351 | 29 45 56 | 2389 |
| | Fomalhaut | E. | 46 42 22 | 3044 | 45 13 4 | 3124 | 43 45 23 | 3212 | 42 19 28 | 3312 |
| | α Pegasi | E. | 59 56 26 | 2208 | 58 8 11 | 2226 | 56 20 22 | 2243 | 54 32 59 | 2264 |
| | Jupiter | E. | 102 2 57 | 2067 | 100 11 7 | 2076 | 98 19 31 | 2085 | 96 28 9 | 2095 |
| | α Arietis | E. | 102 45 14 | 2055 | 100 53 5 | 2063 | 99 1 8 | 2072 | 97 9 25 | 2081 |
| 22 | Spica ♍ | W. | 105 10 59 | 2096 | 107 2 5 | 2109 | 108 52 51 | 2123 | 110 43 15 | 2137 |
| | Antares | W. | 59 49 53 | 2123 | 61 40 17 | 2135 | 63 30 23 | 2148 | 65 20 9 | 2162 |
| | α Pegasi | E. | 45 44 36 | 2398 | 44 0 58 | 2431 | 42 18 8 | 2469 | 40 36 11 | 2511 |
| | Jupiter | E. | 87 15 26 | 2154 | 85 25 49 | 2167 | 83 36 32 | 2182 | 81 47 37 | 2196 |
| | α Arietis | E. | 87 54 54 | 2140 | 86 4 55 | 2153 | 84 15 17 | 2167 | 82 26 0 | 2182 |
| 23 | Antares | W. | 74 23 36 | 2237 | 76 11 9 | 2253 | 77 58 18 | 2269 | 79 45 3 | 2288 |
| | Jupiter | E. | 72 48 36 | 2275 | 71 1 59 | 2291 | 69 15 46 | 2308 | 67 29 58 | 2325 |

## MEAN TIME.

### LUNAR DISTANCES.

| ar's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ares | E. | 23 43 28 | 2334 | 21 58 18 | 2348 | 20 13 21 | 2357 | 18 28 45 | 2387 |
| quilæ | E. | 77 53 24 | 2627 | 76 15 5 | 2618 | 74 36 34 | 2610 | 72 57 53 | 2604 |
| ırn | E. | 94 32 56 | 2207 | 92 44 39 | 2190 | 90 55 57 | 2175 | 89 6 52 | 2160 |
| s | E. | 100 4 42 | 2352 | 98 19 58 | 2335 | 96 34 49 | 2319 | 94 49 17 | 2302 |
| ıalhaut | E. | 105 58 3 | 2705 | 104 21 29 | 2681 | 102 44 23 | 2658 | 101 6 46 | 2636 |
| ulus | W. | 91 2 56 | 2096 | 92 54 2 | 2084 | 94 45 26 | 2072 | 96 37 8 | 2061 |
| a ♍ | W. | 37 6 35 | 2075 | 38 58 12 | 2063 | 40 50 8 | 2052 | 42 42 22 | 2041 |
| quilæ | E. | 64 43 4 | 2599 | 63 4 8 | 2604 | 61 25 19 | 2613 | 59 46 42 | 2624 |
| ırn | E. | 79 55 55 | 2091 | 78 4 42 | 2080 | 76 13 12 | 2068 | 74 21 24 | 2059 |
| s | E. | 85 55 57 | 2231 | 84 8 16 | 2219 | 82 20 17 | 2208 | 80 32 1 | 2197 |
| ıalhaut | E. | 92 52 0 | 2550 | 91 11 56 | 2537 | 89 31 34 | 2525 | 87 50 56 | 2516 |
| ulus | W. | 105 59 27 | 2019 | 107 52 32 | 2012 | 109 45 48 | 2007 | 111 39 11 | 2002 |
| a ♍ | W. | 52 7 26 | 1996 | 54 1 7 | 1989 | 55 54 58 | 1983 | 57 48 59 | 1977 |
| quilæ | E. | 51 38 49 | 2733 | 50 2 53 | 2768 | 48 27 43 | 2810 | 46 53 28 | 2859 |
| ırn | E. | 64 58 46 | 2017 | 63 5 38 | 2012 | 61 12 22 | 2007 | 59 18 58 | 2003 |
| s | E. | 71 27 2 | 2156 | 69 37 28 | 2151 | 67 47 46 | 2145 | 65 57 56 | 2142 |
| ıalhaut | E. | 79 25 8 | 2491 | 77 43 42 | 2492 | 76 2 17 | 2494 | 74 20 56 | 2498 |
| egasi | E. | 96 39 15 | 2141 | 94 49 19 | 2133 | 92 59 11 | 2128 | 91 8 54 | 2122 |
| a ♍ | W. | 67 20 44 | 1963 | 69 15 17 | 1963 | 71 9 50 | 1963 | 73 4 22 | 1964 |
| ares | W. | 22 30 36 | 2099 | 24 21 37 | 2081 | 26 13 6 | 2066 | 28 4 58 | 2055 |
| ırn | E. | 49 50 55 | 1998 | 47 57 17 | 2000 | 46 3 42 | 2003 | 44 10 13 | 2008 |
| s | E. | 56 48 1 | 2141 | 54 58 4 | 2145 | 53 8 13 | 2149 | 51 18 28 | 2155 |
| ıalhaut | E. | 65 56 39 | 2554 | 64 16 41 | 2573 | 62 37 9 | 2594 | 60 58 6 | 2620 |
| egasi | E. | 81 55 56 | 2111 | 80 5 14 | 2113 | 78 14 35 | 2115 | 76 23 58 | 2119 |
| a ♍ | W. | 82 36 14 | 1982 | 84 30 17 | 1987 | 86 24 11 | 1993 | 88 17 56 | 2001 |
| ares | W. | 37 27 12 | 2036 | 39 19 50 | 2038 | 41 12 25 | 2040 | 43 4 57 | 2044 |
| ırn | E. | 34 45 19 | 2053 | 32 53 8 | 2068 | 31 1 20 | 2085 | 29 9 58 | 2105 |
| s | E. | 42 12 46 | 2208 | 40 24 31 | 2225 | 38 36 41 | 2243 | 36 49 18 | 2266 |
| ıalhaut | E. | 52 52 59 | 2802 | 51 18 34 | 2853 | 49 45 15 | 2909 | 48 13 8 | 2974 |
| egasi | E. | 67 12 58 | 2155 | 65 23 22 | 2166 | 63 34 4 | 2179 | 61 45 5 | 2192 |
| ıter | E. | 109 32 6 | 2040 | 107 39 34 | 2046 | 105 47 12 | 2052 | 103 54 59 | 2059 |
| a ♍ | W. | 97 43 25 | 2048 | 99 35 45 | 2059 | 101 27 48 | 2070 | 103 19 33 | 2083 |
| ares | W. | 52 25 26 | 2079 | 54 16 57 | 2090 | 56 8 12 | 2100 | 57 59 11 | 2111 |
| ırn | E. | 20 2 53 | 2282 | 18 16 28 | 2347 | 16 31 37 | 2433 | 14 48 50 | 2551 |
| s | E. | 28 2 5 | 2433 | 26 19 17 | 2485 | 24 37 43 | 2547 | 22 57 35 | 2622 |
| ıalhaut | E. | 40 55 30 | 3424 | 39 33 41 | 3551 | 38 14 13 | 3694 | 36 57 19 | 3857 |
| egasi | E. | 52 46 7 | 2287 | 50 59 48 | 2311 | 49 14 5 | 2337 | 47 29 0 | 2366 |
| iter | E. | 94 37 2 | 2105 | 92 46 11 | 2117 | 90 55 38 | 2128 | 89 5 22 | 2141 |
| rietis | E. | 95 17 57 | 2092 | 93 26 45 | 2103 | 91 35 50 | 2115 | 89 45 13 | 2126 |
| a ♍ | W. | 112 33 18 | 2151 | 114 22 59 | 2167 | 116 12 16 | 2182 | 118 1 10 | 2198 |
| ares | W. | 67 9 34 | 2176 | 68 58 38 | 2190 | 70 47 20 | 2206 | 72 35 39 | 2221 |
| egasi | E. | 38 55 13 | 2556 | 37 15 18 | 2607 | 35 36 32 | 2663 | 33 59 3 | 2727 |
| iter | E. | 79 59 3 | 2211 | 78 10 52 | 2226 | 76 23 3 | 2242 | 74 35 38 | 2258 |
| rietis | E. | 80 37 6 | 2197 | 78 48 34 | 2213 | 77 0 26 | 2229 | 75 12 41 | 2246 |
| ares | W. | 81 31 24 | 2302 | 83 17 20 | 2320 | 85 2 51 | 2337 | 86 47 56 | 2355 |
| iter | E. | 65 44 35 | 2343 | 63 59 38 | 2360 | 62 15 6 | 2378 | 60 31 0 | 2396 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | α Arietis | E. | 73 25 22 | 2263 | 71 38 28 | 2280 | 69 51 59 | 2298 | 68 5 57 | 231 |
| | Sun | E. | 130 8 24 | 2520 | 128 27 39 | 2538 | 126 47 18 | 2555 | 125 7 21 | 257 |
| 24 | Antares | W. | 88 32 36 | 2372 | 90 16 51 | 2390 | 92 0 40 | 2408 | 93 44 4 | 242 |
| | α Aquilæ | W. | 41 50 31 | 3386 | 43 13 3 | 3339 | 44 36 30 | 3298 | 46 0 44 | 326 |
| | Saturn | W. | 18 20 18 | 2584 | 19 59 35 | 2564 | 21 39 19 | 2552 | 23 19 20 | 254 |
| | Jupiter | E. | 58 47 19 | 2415 | 57 4 5 | 2432 | 55 21 16 | 2450 | 53 38 53 | 246 |
| | α Arietis | E. | 59 22 33 | 2412 | 57 39 15 | 2433 | 55 56 27 | 2453 | 54 14 8 | 247 |
| | Sun | E. | 116 53 50 | 2666 | 115 16 24 | 2684 | 113 39 22 | 2704 | 112 2 47 | 272 |
| 25 | α Aquilæ | W. | 53 9 57 | 3163 | 54 36 51 | 3153 | 56 3 57 | 3145 | 57 31 12 | 314 |
| | Saturn | W. | 31 39 38 | 2568 | 33 19 17 | 2578 | 34 58 42 | 2588 | 36 37 53 | 260 |
| | Mars | W. | 24 17 35 | 2933 | 25 49 12 | 2911 | 27 21 17 | 2896 | 28 53 41 | 288 |
| | Jupiter | E. | 45 13 27 | 2561 | 43 33 38 | 2580 | 41 54 15 | 2598 | 40 15 17 | 25 |
| | α Arietis | E. | 45 49 58 | 2583 | 44 10 40 | 2606 | 42 31 53 | 2630 | 40 53 39 | 26 |
| | Sun | E. | 104 6 7 | 2817 | 102 32 1 | 2837 | 100 58 21 | 2855 | 99 25 4 | 28 |
| 26 | α Aquilæ | W. | 64 48 20 | 3138 | 66 15 44 | 3142 | 67 43 3 | 3146 | 69 10 17 | 31 |
| | Saturn | W. | 44 49 37 | 2664 | 46 27 5 | 2678 | 48 4 15 | 2691 | 49 41 7 | 27 |
| | Fomalhaut | W. | 39 38 55 | 4005 | 40 50 30 | 3932 | 42 3 17 | 3868 | 43 17 9 | 38 |
| | Mars | W. | 36 37 23 | 2883 | 38 10 4 | 2888 | 39 42 38 | 2894 | 41 15 5 | 29 |
| | Jupiter | E. | 32 6 40 | 2708 | 30 30 10 | 2726 | 28 54 5 | 2744 | 27 18 24 | 27 |
| | α Arietis | E. | 32 51 3 | 2791 | 31 16 24 | 2824 | 29 42 27 | 2858 | 28 9 14 | 28 |
| | Sun | E. | 91 44 33 | 2964 | 90 13 35 | 2981 | 88 42 59 | 2998 | 87 12 44 | 30 |
| 27 | α Aquilæ | W. | 76 24 35 | 3187 | 77 51 0 | 3196 | 79 17 14 | 3205 | 80 43 17 | 32 |
| | Saturn | W. | 57 41 3 | 2770 | 59 16 10 | 2782 | 60 51 1 | 2795 | 62 25 35 | 28 |
| | Fomalhaut | W. | 49 38 46 | 3623 | 50 56 55 | 3599 | 52 15 31 | 3577 | 53 34 31 | 35 |
| | Mars | W. | 48 54 50 | 2944 | 50 26 13 | 2953 | 51 57 25 | 2963 | 53 28 24 | 29 |
| | α Pegasi | W. | 28 51 49 | 3423 | 30 13 40 | 3376 | 31 36 24 | 3337 | 32 59 53 | 33 |
| | Sun | E. | 79 46 39 | 3096 | 78 18 24 | 3111 | 76 50 28 | 3126 | 75 22 50 | 31 |
| 28 | α Aquilæ | W. | 87 50 37 | 3266 | 89 15 29 | 3277 | 90 40 7 | 3288 | 92 4 32 | 33 |
| | Saturn | W. | 70 14 34 | 2865 | 71 47 38 | 2876 | 73 20 28 | 2886 | 74 53 5 | 29 |
| | Mars | W. | 61 0 23 | 3019 | 62 30 12 | 3029 | 63 59 49 | 3038 | 65 29 15 | 30 |
| | Fomalhaut | W. | 60 13 48 | 3497 | 61 34 16 | 3489 | 62 54 53 | 3483 | 64 15 36 | 34 |
| | α Pegasi | W. | 40 4 48 | 3210 | 41 30 45 | 3200 | 42 56 55 | 3193 | 44 23 13 | 31 |
| | Sun | E. | 68 8 56 | 3209 | 66 42 57 | 3221 | 65 17 13 | 3233 | 63 51 43 | 32 |
| 29 | α Aquilæ | W. | 99 3 11 | 3361 | 100 26 12 | 3374 | 101 48 58 | 3387 | 103 11 29 | 34 |
| | Saturn | W. | 82 33 1 | 2943 | 84 4 25 | 2951 | 85 35 39 | 2959 | 87 6 43 | 29 |
| | Mars | W. | 72 53 46 | 3087 | 74 22 11 | 3096 | 75 50 26 | 3103 | 77 18 32 | 31 |
| | Fomalhaut | W. | 71 0 15 | 3465 | 72 21 18 | 3466 | 73 42 20 | 3466 | 75 3 22 | 34 |
| | α Pegasi | W. | 51 36 9 | 3171 | 53 2 53 | 3171 | 54 29 37 | 3171 | 55 56 21 | 31 |
| | Sun | E. | 56 47 36 | 3300 | 55 23 24 | 3310 | 53 59 24 | 3319 | 52 35 35 | 33 |
| 30 | Saturn | W. | 94 39 39 | 3002 | 96 9 49 | 3009 | 97 39 51 | 3015 | 99 9 45 | 30 |
| | Mars | W. | 84 36 59 | 3143 | 86 4 17 | 3148 | 87 31 28 | 3153 | 88 58 33 | 31 |
| | Fomalhaut | W. | 81 48 12 | 3477 | 83 9 2 | 3480 | 84 29 48 | 3483 | 85 50 31 | 34 |
| | α Pegasi | W. | 63 9 49 | 3177 | 64 36 26 | 3178 | 66 3 1 | 3180 | 67 29 33 | 31 |
| | α Arietis | W. | 19 48 5 | 3389 | 21 10 34 | 3345 | 22 33 53 | 3311 | 23 57 52 | 3 |
| | Jupiter | W. | 17 35 9 | 3113 | 19 3 3 | 3111 | 20 30 59 | 3110 | 21 58 56 | 3 |
| | Sun | E. | 45 39 5 | 3371 | 44 16 15 | 3379 | 42 53 34 | 3386 | 41 31 2 | 3 |

## MEAN TIME.

### LUNAR DISTANCES.

| r's Name and Position. | | Midnight. | P. L. of diff. | XV$^h$. | P. L. of diff. | XVIII$^h$. | P. L. of diff. | XXI$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ietis | E. | 66 20 21 | 2335 | 64 35 13 | 2353 | 62 50 31 | 2373 | 61 6 18 | 2393 |
| | E. | 123 27 49 | 2591 | 121 48 42 | 2609 | 120 9 59 | 2628 | 118 31 42 | 2646 |
| ares | W. | 95 27 2 | 2443 | 97 9 35 | 2462 | 98 51 42 | 2480 | 100 33 24 | 2497 |
| quilæ | W. | 47 25 37 | 3235 | 48 51 5 | 3212 | 50 17 0 | 3192 | 51 43 19 | 3176 |
| rn | W. | 24 59 29 | 2545 | 26 39 40 | 2548 | 28 19 47 | 2552 | 29 59 48 | 2560 |
| iter | E. | 51 56 56 | 2487 | 50 15 25 | 2506 | 48 34 20 | 2525 | 46 53 41 | 2543 |
| ietis | E. | 52 32 18 | 2495 | 50 50 58 | 2516 | 49 10 7 | 2538 | 47 29 47 | 2561 |
| | E. | 110 26 36 | 2741 | 108 50 51 | 2760 | 107 15 31 | 2780 | 105 40 37 | 2798 |
| quilæ | W. | 58 58 33 | 3136 | 60 25 59 | 3135 | 61 53 26 | 3134 | 63 20 54 | 3136 |
| rn | W. | 38 16 48 | 2613 | 39 55 26 | 2625 | 41 33 47 | 2638 | 43 11 51 | 2651 |
| s | W. | 30 26 18 | 2880 | 31 59 2 | 2877 | 33 31 50 | 2877 | 35 4 38 | 2880 |
| iter | E. | 38 36 45 | 2635 | 36 58 37 | 2652 | 35 20 53 | 2671 | 33 43 35 | 2689 |
| ietis | E. | 39 15 58 | 2680 | 37 38 51 | 2705 | 36 2 18 | 2733 | 34 26 22 | 2761 |
| | E. | 97 52 11 | 2892 | 96 19 42 | 2910 | 94 47 36 | 2928 | 93 15 53 | 2946 |
| quilæ | W. | 70 37 24 | 3157 | 72 4 25 | 3164 | 73 31 17 | 3171 | 74 58 1 | 3179 |
| rn | W. | 51 17 42 | 2718 | 52 53 58 | 2731 | 54 29 57 | 2744 | 56 5 39 | 2757 |
| alhaut | W. | 44 31 59 | 3765 | 45 47 38 | 3721 | 47 4 3 | 3684 | 48 21 7 | 3651 |
| s | W. | 42 47 23 | 2909 | 44 19 30 | 2916 | 45 51 28 | 2926 | 47 23 14 | 2934 |
| iter | E. | 25 43 8 | 2782 | 24 8 17 | 2802 | 22 33 51 | 2821 | 20 59 51 | 2843 |
| ietis | E. | 26 36 50 | 2938 | 25 5 19 | 2984 | 23 34 46 | 3037 | 22 5 19 | 3098 |
| | E. | 85 42 50 | 3033 | 84 13 18 | 3048 | 82 44 5 | 3065 | 81 15 12 | 3081 |
| quilæ | W. | 82 9 9 | 3225 | 83 34 49 | 3235 | 85 0 17 | 3244 | 86 25 34 | 3256 |
| rn | W. | 63 59 54 | 2819 | 65 33 57 | 2832 | 67 7 44 | 2843 | 68 41 16 | 2854 |
| alhaut | W. | 54 53 51 | 3542 | 56 13 29 | 3527 | 57 33 23 | 3516 | 58 53 30 | 3506 |
| s | W. | 54 59 12 | 2981 | 56 29 48 | 2992 | 58 0 11 | 3001 | 59 30 23 | 3010 |
| egasi | W. | 34 24 0 | 3278 | 35 48 37 | 3255 | 37 13 41 | 3237 | 38 39 6 | 3223 |
| | E. | 73 55 30 | 3155 | 72 28 27 | 3168 | 71 1 40 | 3183 | 69 35 10 | 3196 |
| quilæ | W. | 93 28 43 | 3312 | 94 52 41 | 3324 | 96 16 24 | 3335 | 97 39 55 | 3348 |
| rn | W. | 76 25 28 | 2906 | 77 57 39 | 2916 | 79 29 38 | 2925 | 81 1 25 | 2934 |
| s | W. | 66 58 30 | 3056 | 68 27 34 | 3064 | 69 56 28 | 3072 | 71 25 12 | 3080 |
| alhaut | W. | 65 36 25 | 3474 | 66 57 18 | 3471 | 68 18 15 | 3469 | 69 39 14 | 3467 |
| egasi | W. | 45 49 39 | 3181 | 47 16 11 | 3178 | 48 42 47 | 3174 | 50 9 27 | 3173 |
| | E. | 62 26 27 | 3257 | 61 1 25 | 3268 | 59 36 36 | 3279 | 58 12 0 | 3289 |
| quilæ | W. | 104 33 45 | 3415 | 105 55 45 | 3429 | 107 17 29 | 3443 | 108 38 57 | 3459 |
| rn | W. | 88 37 36 | 2974 | 90 8 21 | 2982 | 91 38 56 | 2989 | 93 9 22 | 2997 |
| s | W. | 78 46 30 | 3117 | 80 14 19 | 3124 | 81 42 0 | 3130 | 83 9 33 | 3136 |
| alhaut | W. | 76 24 24 | 3468 | 77 45 24 | 3470 | 79 6 22 | 3471 | 80 27 18 | 3473 |
| egasi | W. | 57 23 5 | 3172 | 58 49 48 | 3173 | 60 16 30 | 3173 | 61 43 11 | 3175 |
| | E. | 51 11 57 | 3338 | 49 48 29 | 3346 | 48 25 11 | 3355 | 47 2 3 | 3364 |
| rn | W. | 100 39 32 | 3026 | 102 9 13 | 3031 | 103 38 47 | 3037 | 105 8 14 | 3041 |
| s | W. | 90 25 31 | 3164 | 91 52 23 | 3169 | 93 19 9 | 3173 | 94 45 50 | 3178 |
| alhaut | W. | 87 11 10 | 3491 | 88 31 44 | 3496 | 89 52 13 | 3500 | 91 12 37 | 3505 |
| egasi | W. | 68 56 4 | 3185 | 70 22 31 | 3186 | 71 48 57 | 3188 | 73 15 20 | 3191 |
| ietis | W. | 25 22 25 | 3259 | 26 47 24 | 3241 | 28 12 45 | 3226 | 29 38 24 | 3213 |
| iter | W. | 23 26 52 | 3112 | 24 54 47 | 3113 | 26 22 41 | 3114 | 27 50 33 | 3117 |
| | E. | 40 8 39 | 3401 | 38 46 23 | 3408 | 37 24 16 | 3415 | 36 2 16 | 3422 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITE

At $15^h\ 30^m$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·1 ○3 2· ·4 | |
| 2 | ·2 ○1· ·3 ·4 | |
| 3 | ·1● ○·2 3. ·4 | |
| 4 | 1· ○ 3· 2· ·4 | |
| 5 | 3· 2· ○ ·1 4· | |
| 6 | 3· 1· ·2 ○ 4· | |
| 7 | ·3 ○ 1· ·2 4· | |
| 8 | ·1 ·3 ○ 2· 4· | |
| 9 | 2· 4· ○ 1· ·3 | |
| 10 | ·1● 4· ○ 3. | |
| 11 | 4· 1· ○ 3· 2· | |
| 12 | 4· 3· 2· ○ ·1 | |
| 13 | ·4 3· ·2 1· ○ | |
| 14 | ·4 ·3 ○ 1· ·2 | |
| 15 | ·4 ·1 ·3 ○ 2· | |
| 16 | 2· ·4 ○ 1· ·3 | |
| 17 | ·1 ·2 ○4 ·3 | |
| 18 | 1·○ ○ 2· ·4 3· | |
| 19 | 3·○ 2·○ ·1 ·4 | |
| 20 | 3· ·2 1· ○ ·4 | |
| 21 | ·3 ○ ·1 ·2 4. | |
| 22 | ·3 ·1 ○ 2· 4· | |
| 23 | 2· ○ 1· ·3 4· | |
| 24 | ·1 ·2 ○ 4· ·3 | |
| 25 | ○1· 4· ·2 3· | |
| 26 | ·1● 4· 2○· 3· | |
| 27 | 4· 3· ·2 1· ○ | |
| 28 | 4· ·3 ○ ·2 ·1 | |
| 29 | 4· ·3 1· ○ 2· | |
| 30 | ·4 2· ○ ·3 1. | |

This Table represents, at $15^h\ 30^m$ after *Mean Noon* of each day of the month, the relative p of the images of Jupiter and his Satellites, as they would appear (disregarding their latitu an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to dist the Satellites from each other; and their positions are such as to indicate the directions of th lites' motions, which are in all cases to be considered as *towards the numerals*. When a Sat at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc or in the sha Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ELLITE | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 18 8 4·3 | 22 50 21·6 | Im. |
| | 3 | 12 36 32·3 | 17 25 48·3 | Im. |
| | 5 | 7 5 2·3 | 12 1 17·0 | Im. |
| | 7 | 1 33 31·2 | 6 36 44·5 | Im. |
| | 8 | 20 1 59·2 | 1 12 11·1 | Im. |
| | 10† | 14 30 26·1 | 19 47 36·7 | Im. |
| | 12 | 8 58 55·1 | 14 23 4·3 | Im. |
| | 14 | 3 27 23·1 | 8 58 31·0 | Im. i |
| | 15 | 21 55 49·7 | 3 33 56·3 | Im. *  |
| | 17 | 16 24 16·0 | 22 9 21·2 | Im. |
| | 19 | 10 52 43·9 | 16 44 47·7 | Im. |
| | 21 | 5 21 11·1 | 11 20 13·6 | Im. |
| | 22 | 23 49 36·9 | 5 55 38·0 | Im. |
| | 24 | 18 18 2·5 | 0 31 2·3 | Im. |
| | 26† | 12 46 29·5 | 19 6 27·9 | Im. |
| | 28 | 7 14 56·2 | 13 41 53·3 | Im. |
| | 30 | 1 43 21·1 | 8 17 16·8 | Im. |
| I. | 3 | 10 39 36·1 | 15 28 32·8 | Im. |
| | 6 | 23 59 0·8 | 5 1 58·5 | Im. |
| | 10 | 13 17 17·8 | 18 34 16·4 | Im. |
| | 14 | 2 36 41·8 | 8 7 41·3 | Im. |
| | 17 | 15 54 57·8 | 21 39 58·2 | Im. i  |
| | 21 | 5 14 21·0 | 11 13 22·3 | Im. * |
| | 24 | 18 32 35·6 | 0 45 37·7 | Im. |
| | 28 | 7 51 57·0 | 14 19 0·1 | Im. |
| | 28 | 10 19 47·6 | 16 47 15·1 | Em. |
| II. | 1 | 12 18 44·5 | 17 0 4·4 | Im. |
| | 1† | 14 41 38·3 | 19 23 21·7 | Em. |
| | 8 | 16 19 25·1 | 21 29 0·4 | Im. |
| | 8 | 18 41 22·1 | 23 51 20·8 | Em. |
| | 15 | 20 20 5·6 | 1 57 56·4 | Im. |
| | 15 | 22 41 6·7 | 4 19 20·7 | Em. i e  |
| | 23 | 0 20 49·5 | 6 26 55·7 | Im. * * |
| | 23 | 2 40 56·2 | 8 47 25·5 | Em. |
| | 30 | 4 22 8·3 | 10 56 30·1 | Im. |
| | 30 | 6 41 20·3 | 13 16 5·0 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | In the Shadow. | 1 1 57 | 2 21 0 | 2 23 14 | 2† 20 4 | 2 22 18 |
| | | 3† 20 34 | 4 15 37 | 4 17 51 | 4 14 39 | 4 16 53 |
| | | 5 15 10 | 6 10 14 | 6 12 28 | 6 9 15 | 6 11 29 |
| | | 7 9 47 | 7 4 51 | 8 7 5 | 7 3 51 | 8 6 4 |
| | | 8 4 24 | 9 23 28 | 9 1 41 | 9 22 26 | 9 0 40 |
| | | 10 23 1 | 11 18 5 | 11† 20 18 | 11 17 2 | 11† 19 16 |
| | | 12 17 38 | 13 12 42 | 13 14 55 | 13 11 37 | 13 13 51 |
| | | 14 12 14 | 15 7 19 | 15 9 32 | 15 6 13 | 15 8 27 |
| | | 16 6 51 | 16 1 56 | 16 4 9 | 16 0 49 | 16 3 2 |
| | | 17 1 28 | 18† 20 33 | 18 22 46 | 18† 19 24 | 18 21 38 |
| | | 19* 20 4 | 20 15 9 | 20 17 22 | 20 14 0 | 20 16 13 |
| | | 21 14 41 | 22 9 46 | 22 11 59 | 22 8 35 | 22 10 49 |
| | | 23 9 17 | 23 4 23 | 24 6 36 | 23 3 11 | 23 5 24 |
| | | 24 3 54 | 25 23 0 | 25 1 12 | 25† 21 47 | 25 0 0 |
| | | 26 22 30 | 27 17 36 | 27† 19 49 | 27 16 22 | 27 18 36 |
| | | 28 17 6 | 29 12 13 | 29 14 25 | 29 10 58 | 29 13 11 |
| | | 30 11 43 | | | 30 5 33 | 31 7 47 |
| II. | In the Shadow. | 3† 19 56 | 1 22 42 | 1 1 15 | 1 20 49 | 1 23 22 |
| | | 7 9 35 | 5 12 19 | 5 14 52 | 5 10 20 | 5 12 53 |
| | | 10 23 12 | 8 1 57 | 8 4 29 | 8 23 52 | 8 2 24 |
| | | 14 12 51 | 12 15 33 | 12 18 6 | 12 13 23 | 12 15 56 |
| | | 17 2 28 | 15 5 10 | 16 7 42 | 15 2 54 | 15 5 27 |
| | | 21 16 6 | 19 18 46 | 19† 21 18 | 19 16 26 | 19 18 58 |
| | | 24 5 43 | 23 8 22 | 23 10 54 | 22 5 57 | 23 8 29 |
| | 28 16 49 | 28† 19 20 | 26† 21 58 | 26 0 29 | 26† 19 28 | 26† 22 0 |
| | | | 30 11 33 | 30 14 4 | 30 8 59 | 30 11 32 |
| III. | 1 20 38 | 1 23 14 | 5 11 6 | 5 13 40 | 5 7 8 | 5 9 46 |
| | 8 1 31 | 8 4 4 | 12 15 59 | 12 18 30 | 12 11 38 | 12 14 15 |
| | 16 6 22 | 16 8 52 | 19† 20 50 | 19 23 18 | 19 16 8 | 19 18 43 |
| | 23 11 11 | 23 13 38 | 26 1 37 | 26 4 2 | 26* 20 37 | 26 23 12 |
| | 30 15 58 | 30 18 22 | | | | |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of | | | | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·840658. | From Mean Noon of January 1. | |
|---|---|---|---|---|---|---|---|
| A | B | C | D | | Days. | Day of the Year. | Fraction of the Year. |
| | | | | h m s | | | |
| —0 ·7781 | —1 ·2851 | +9 ·8353 | +0 ·7581 | 19 17 31 ·28 | 70 | 151 | ·413 |
| 0 ·7561 | 1 ·2875 | 9 ·8374 | 0 ·7595 | 19 13 35 ·37 | 71 | 152 | ·416 |
| 0 ·7328 | 1 ·2898 | 9 ·8394 | 0 ·7608 | 19 9 39 ·46 | 72 | 153 | ·419 |
| —0 ·7080 | —1 ·2919 | +9 ·8415 | +0 ·7620 | 19 5 43 ·55 | 73 | 154 | ·422 |
| 0 ·6817 | 1 ·2939 | 9 ·8435 | 0 ·7633 | 19 1 47 ·64 | 74 | 155 | ·424 |
| 0 ·6535 | 1 ·2958 | 9 ·8455 | 0 ·7645 | 18 57 51 ·73 | 75 | 156 | ·427 |
| —0 ·6232 | —1 ·2975 | +9 ·8476 | +0 ·7656 | 18 53 55 ·82 | 76 | 157 | ·430 |
| 0 ·5905 | 1 ·2991 | 9 ·8496 | 0 ·7667 | 18 49 59 ·91 | 77 | 158 | ·433 |
| 0 ·5551 | 1 ·3006 | 9 ·8516 | 0 ·7678 | 18 46 4 ·00 | 78 | 159 | ·435 |
| —0 ·5164 | —1 ·3020 | +9 ·8537 | +0 ·7688 | 18 42 8 ·09 | 79 | 160 | ·438 |
| 0 ·4738 | 1 ·3032 | 9 ·8557 | 0 ·7698 | 18 38 12 ·17 | 80 | 161 | ·441 |
| 0 ·4264 | 1 ·3043 | 9 ·8577 | 0 ·7707 | 18 34 16 ·26 | 81 | 162 | ·444 |
| —0 ·3731 | —1 ·3053 | +9 ·8597 | +0 ·7716 | 18 30 20 ·35 | 82 | 163 | ·446 |
| 0 ·3122 | 1 ·3061 | 9 ·8617 | 0 ·7724 | 18 26 24 ·44 | 83 | 164 | ·449 |
| 0 ·2412 | 1 ·3069 | 9 ·8638 | 0 ·7732 | 18 22 28 ·53 | 84 | 165 | ·452 |
| —0 ·1561 | —1 ·3075 | +9 ·8657 | +0 ·7739 | 18 18 32 ·62 | 85 | 166 | ·454 |
| 0 ·0501 | 1 ·3080 | 9 ·8677 | 0 ·7746 | 18 14 36 ·70 | 86 | 167 | ·457 |
| 9 ·9095 | 1 ·3084 | 9 ·8697 | 0 ·7753 | 18 10 40 ·79 | 87 | 168 | ·460 |
| —9 ·7000 | —1 ·3086 | +9 ·8717 | +0 ·7759 | 18 6 44 ·88 | 88 | 169 | ·463 |
| —9 ·2798 | 1 ·3088 | 9 ·8737 | 0 ·7764 | 18 2 48 ·97 | 89 | 170 | ·465 |
| +9 ·0804 | 1 ·3088 | 9 ·8757 | 0 ·7770 | 17 58 53 ·06 | 90 | 171 | ·468 |
| +9 ·6345 | —1 ·3087 | +9 ·8776 | +0 ·7774 | 17 54 57 ·15 | 91 | 172 | ·471 |
| 9 ·8702 | 1 ·3084 | 9 ·8795 | 0 ·7779 | 17 51 1 ·24 | 92 | 173 | ·474 |
| 0 ·0220 | 1 ·3081 | 9 ·8815 | 0 ·7782 | 17 47 5 ·32 | 93 | 174 | ·476 |
| +0 ·1342 | —1 ·3076 | +9 ·8834 | +0 ·7786 | 17 43 9 ·41 | 94 | 175 | ·479 |
| 0 ·2232 | 1 ·3070 | 9 ·8853 | 0 ·7789 | 17 39 13 ·50 | 95 | 176 | ·482 |
| 0 ·2969 | 1 ·3063 | 9 ·8872 | 0 ·7791 | 17 35 17 ·59 | 96 | 177 | ·485 |
| +0 ·3598 | —1 ·3055 | +9 ·8891 | +0 ·7793 | 17 31 21 ·68 | 97 | 178 | ·487 |
| 0 ·4146 | 1 ·3045 | 9 ·8910 | 0 ·7795 | 17 27 25 ·77 | 98 | 179 | ·490 |
| 0 ·4632 | 1 ·3035 | 9 ·8928 | 0 ·7796 | 17 23 29 ·86 | 99 | 180 | ·493 |
| +0 ·5068 | —1 ·3023 | +9 ·8947 | +0 ·7797 | 17 19 33 ·94 | 100 | 181 | ·496 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be added to Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Tues. | 1 | 6 41 2·55 | 10·339 | N.23 7 20·4 | 10·65 | 1 8·69 | 3 26·71 |
| Wed. | 2 | 6 45 10·68 | 10·327 | 23 3 4·7 | 11·66 | 1 8·65 | 3 38·24 |
| Thur. | 3 | 6 49 18·53 | 10·315 | 22 58 24·8 | 12·66 | 1 8·61 | 3 49·50 |
| Frid. | 4 | 6 53 26·10 | 10·302 | 22 53 20·9 | 13·66 | 1 8·57 | 4 0·48 |
| Sat. | 5 | 6 57 33·35 | 10·288 | 22 47 53·1 | 14·65 | 1 8·53 | 4 11·15 |
| *Sun.* | 6 | 7 1 40·25 | 10·273 | 22 42 1·5 | 15·63 | 1 8·48 | 4 21·47 |
| Mon. | 7 | 7 5 46·80 | 10·257 | 22 35 46·3 | 16·61 | 1 8·43 | 4 31·43 |
| Tues. | 8 | 7 9 52·96 | 10·240 | 22 29 7·7 | 17·58 | 1 8·38 | 4 41·01 |
| Wed. | 9 | 7 13 58·71 | 10·222 | 22 22 5·8 | 18·55 | 1 8·32 | 4 50·18 |
| Thur. | 10 | 7 18 4·04 | 10·203 | 22 14 40·7 | 19·50 | 1 8·26 | 4 58·92 |
| Frid. | 11 | 7 22 8·92 | 10·184 | 22 6 52·8 | 20·45 | 1 8·20 | 5 7·22 |
| Sat. | 12 | 7 26 13·33 | 10·164 | 21 58 42·1 | 21·39 | 1 8·14 | 5 15·06 |
| *Sun.* | 13 | 7 30 17·27 | 10·143 | 21 50 8·8 | 22·32 | 1 8·08 | 5 22·42 |
| Mon. | 14 | 7 34 20·71 | 10·122 | 21 41 13·1 | 23·24 | 1 8·01 | 5 29·29 |
| Tues. | 15 | 7 38 23·65 | 10·101 | 21 31 55·3 | 24·15 | 1 7·94 | 5 35·66 |
| Wed. | 16 | 7 42 26·07 | 10·079 | 21 22 15·6 | 25·07 | 1 7·87 | 5 41·50 |
| Thur. | 17 | 7 46 27·97 | 10·057 | 21 12 14·0 | 25·96 | 1 7·80 | 5 46·83 |
| Frid. | 18 | 7 50 29·35 | 10·035 | 21 1 50·9 | 26·85 | 1 7·72 | 5 51·64 |
| Sat. | 19 | 7 54 30·18 | 10·012 | 20 51 6·5 | 27·73 | 1 7·65 | 5 55·90 |
| *Sun.* | 20 | 7 58 30·46 | 9·989 | 20 40 0·9 | 28·60 | 1 7·57 | 5 59·62 |
| Mon. | 21 | 8 2 30·20 | 9·966 | 20 28 34·4 | 29·46 | 1 7·49 | 6 2·79 |
| Tues. | 22 | 8 6 29·38 | 9·943 | 20 16 47·3 | 30·32 | 1 7·41 | 6 5·41 |
| Wed. | 23 | 8 10 28·00 | 9·919 | 20 4 39·7 | 31·16 | 1 7·33 | 6 7·47 |
| Thur. | 24 | 8 14 26·06 | 9·895 | 19 52 11·9 | 31·99 | 1 7·25 | 6 8·96 |
| Frid. | 25 | 8 18 23·55 | 9·872 | 19 39 24·2 | 32·81 | 1 7·17 | 6 9·90 |
| Sat. | 26 | 8 22 20·48 | 9·848 | 19 26 16·8 | 33·62 | 1 7·08 | 6 10·26 |
| *Sun.* | 27 | 8 26 16·83 | 9·823 | 19 12 49·9 | 34·42 | 1 7·00 | 6 10·06 |
| Mon. | 28 | 8 30 12·59 | 9·799 | 18 59 4·0 | 35·20 | 1 6·91 | 6 9·27 |
| Tues. | 29 | 8 34 7·77 | 9·775 | 18 44 59·2 | 35·98 | 1 6·83 | 6 7·90 |
| Wed. | 30 | 8 38 2·37 | 9·750 | 18 30 35·8 | 36·74 | 1 6·74 | 6 5·95 |
| Thur. | 31 | 8 41 56·38 | 9·725 | 18 15 54·1 | 37·49 | 1 6·66 | 6 3·41 |
| Frid. | 32 | 8 45 49·79 | | N.18 0 54·4 | | 1 6·57 | 6 0·28 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·19 from the *Sider*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S *Apparent* Right Ascension. | THE SUN'S *Apparent* Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be subtracted from Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| Tues. | 1 | 6 41 1 ·96 | N.23 7 21 ·0 | 15 45 ·0 | 3 26 ·68 | 6 37 35 ·28 |
| Wed. | 2 | 6 45 10 ·05 | 23 3 5 ·4 | 15 45 ·0 | 3 38 ·21 | 6 41 31 ·84 |
| Thur. | 3 | 6 49 17 ·87 | 22 58 25 ·6 | 15 45 ·0 | 3 49 ·47 | 6 45 28 ·40 |
| Frid. | 4 | 6 53 25 ·41 | 22 53 21 ·8 | 15 45 ·0 | 4 0 ·45 | 6 49 24 ·95 |
| Sat. | 5 | 6 57 32 ·63 | 22 47 54 ·1 | 15 45 ·0 | 4 11 ·12 | 6 53 21 ·51 |
| *Sun.* | 6 | 7 1 39 ·51 | 22 42 2 ·6 | 15 45 ·0 | 4 21 ·44 | 6 57 18 ·07 |
| Mon. | 7 | 7 5 46 ·03 | 22 35 47 ·6 | 15 45 ·1 | 4 31 ·40 | 7 1 14 ·62 |
| Tues. | 8 | 7 9 52 ·16 | 22 29 9 ·1 | 15 45 ·1 | 4 40 ·98 | 7 5 11 ·18 |
| Wed. | 9 | 7 13 57 ·89 | 22 22 7 ·3 | 15 45 ·1 | 4 50 ·15 | 7 9 7 ·74 |
| Thur. | 10 | 7 18 3 ·19 | 22 14 42 ·4 | 15 45 ·2 | 4 58 ·90 | 7 13 4 ·30 |
| Frid. | 11 | 7 22 8 ·05 | 22 6 54 ·5 | 15 45 ·2 | 5 7 ·20 | 7 17 0 ·85 |
| Sat. | 12 | 7 26 12 ·44 | 21 58 43 ·9 | 15 45 ·3 | 5 15 ·04 | 7 20 57 ·41 |
| *Sun.* | 13 | 7 30 16 ·36 | 21 50 10 ·8 | 15 45 ·3 | 5 22 ·40 | 7 24 53 ·97 |
| Mon. | 14 | 7 34 19 ·79 | 21 41 15 ·3 | 15 45 ·4 | 5 29 ·27 | 7 28 50 ·52 |
| Tues. | 15 | 7 38 22 ·71 | 21 31 57 ·6 | 15 45 ·4 | 5 35 ·63 | 7 32 47 ·08 |
| Wed. | 16 | 7 42 25 ·12 | 21 22 17 ·9 | 15 45 ·5 | 5 41 ·48 | 7 36 43 ·64 |
| Thur. | 17 | 7 46 27 ·01 | 21 12 16 ·5 | 15 45 ·6 | 5 46 ·81 | 7 40 40 ·19 |
| Frid. | 18 | 7 50 28 ·37 | 21 1 53 ·5 | 15 45 ·6 | 5 51 ·62 | 7 44 36 ·75 |
| Sat. | 19 | 7 54 29 ·19 | 20 51 9 ·2 | 15 45 ·7 | 5 55 ·88 | 7 48 33 ·30 |
| *Sun.* | 20 | 7 58 29 ·46 | 20 40 3 ·8 | 15 45 ·7 | 5 59 ·60 | 7 52 29 ·86 |
| Mon. | 21 | 8 2 29 ·19 | 20 28 37 ·4 | 15 45 ·8 | 6 2 ·78 | 7 56 26 ·42 |
| Tues. | 22 | 8 6 28 ·37 | 20 16 50 ·3 | 15 45 ·9 | 6 5 ·40 | 8 0 22 ·97 |
| Wed. | 23 | 8 10 26 ·99 | 20 4 42 ·9 | 15 46 ·0 | 6 7 ·46 | 8 4 19 ·53 |
| Thur. | 24 | 8 14 25 ·04 | 19 52 15 ·2 | 15 46 ·1 | 6 8 ·96 | 8 8 16 ·09 |
| Frid. | 25 | 8 18 22 ·54 | 19 39 27 ·5 | 15 46 ·2 | 6 9 ·90 | 8 12 12 ·64 |
| Sat. | 26 | 8 22 19 ·46 | 19 26 20 ·2 | 15 46 ·3 | 6 10 ·27 | 8 16 9 ·20 |
| *Sun.* | 27 | 8 26 15 ·81 | 19 12 53 ·5 | 15 46 ·4 | 6 10 ·06 | 8 20 5 ·75 |
| Mon. | 28 | 8 30 11 ·59 | 18 59 7 ·6 | 15 46 ·5 | 6 9 ·28 | 8 24 2 ·31 |
| Tues. | 29 | 8 34 6 ·78 | 18 45 2 ·8 | 15 46 ·6 | 6 7 ·91 | 8 27 58 ·86 |
| Wed. | 30 | 8 38 1 ·38 | 18 30 39 ·5 | 15 46 ·8 | 6 5 ·96 | 8 31 55 ·42 |
| Thur. | 31 | 8 41 55 ·40 | 18 15 57 ·9 | 15 46 ·9 | 6 3 ·42 | 8 35 51 ·97 |
| Frid. | 32 | 8 45 48 ·82 | N.18 0 58 ·2 | 15 47 ·0 | 6 0 ·29 | 8 39 48 ·53 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. Noon. | THE SUN'S *Apparent* Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 99 25 34 ·5 | N.0 ·05 | 0 ·0072439 | 14 46 ·7 | 14 44 ·7 | 54 13 ·8 | 54 6 ·[illegible] |
| 2 | 100 22 47 ·3 | S.0 ·08 | 0 ·0072464 | 14 43 ·3 | 14 42 ·2 | 54 1 ·4 | 53 57 ·[illegible] |
| 3 | 101 20 0 ·2 | 0 ·19 | 0 ·0072463 | 14 41 ·6 | 14 41 ·3 | 53 55 ·2 | 53 54 ·[illegible] |
| 4 | 102 17 13 ·3 | 0 ·29 | 0 ·0072436 | 14 41 ·4 | 14 41 ·9 | 53 54 ·5 | 53 56 ·[illegible] |
| 5 | 103 14 26 ·4 | 0 ·37 | 0 ·0072382 | 14 42 ·7 | 14 43 ·9 | 53 59 ·3 | 54 3 ·[illegible] |
| 6 | 104 11 39 ·5 | 0 ·42 | 0 ·0072301 | 14 45 ·5 | 14 47 ·6 | 54 9 ·7 | 54 17 ·[illegible] |
| 7 | 105 8 52 ·7 | 0 ·44 | 0 ·0072194 | 14 49 ·9 | 14 52 ·6 | 54 25 ·7 | 54 35 ·[illegible] |
| 8 | 106 6 5 ·8 | 0 ·43 | 0 ·0072063 | 14 55 ·8 | 14 59 ·5 | 54 47 ·5 | 55 0 ·[illegible] |
| 9 | 107 3 19 ·0 | 0 ·39 | 0 ·0071906 | 15 3 ·5 | 15 8 ·0 | 55 15 ·7 | 55 32 ·[illegible] |
| 10 | 108 0 32 ·1 | 0 ·32 | 0 ·0071725 | 15 13 ·1 | 15 18 ·5 | 55 50 ·7 | 56 10 ·[illegible] |
| 11 | 108 57 45 ·2 | 0 ·23 | 0 ·0071522 | 15 24 ·3 | 15 30 ·6 | 56 31 ·8 | 56 55 ·[illegible] |
| 12 | 109 54 58 ·3 | S.0 ·12 | 0 ·0071298 | 15 37 ·2 | 15 44 ·1 | 57 19 ·2 | 57 44 ·[illegible] |
| 13 | 110 52 11 ·4 | N.0 ·01 | 0 ·0071054 | 15 51 ·2 | 15 58 ·3 | 58 10 ·6 | 58 36 ·[illegible] |
| 14 | 111 49 24 ·6 | 0 ·14 | 0 ·0070792 | 16 5 ·5 | 16 12 ·4 | 59 3 ·1 | 59 28 ·[illegible] |
| 15 | 112 46 37 ·9 | 0 ·27 | 0 ·0070512 | 16 19 ·0 | 16 25 ·0 | 59 52 ·6 | 60 14 ·[illegible] |
| 16 | 113 43 51 ·4 | 0 ·40 | 0 ·0070217 | 16 30 ·3 | 16 34 ·7 | 60 34 ·3 | 60 50 ·[illegible] |
| 17 | 114 41 5 ·2 | 0 ·51 | 0 ·0069906 | 16 38 ·0 | 16 40 ·3 | 61 2 ·6 | 61 10 ·[illegible] |
| 18 | 115 38 19 ·5 | 0 ·61 | 0 ·0069581 | 16 41 ·2 | 16 40 ·9 | 61 14 ·0 | 61 12 ·[illegible] |
| 19 | 116 35 34 ·1 | 0 ·69 | 0 ·0069242 | 16 39 ·2 | 16 36 ·2 | 61 6 ·7 | 60 55 ·[illegible] |
| 20 | 117 32 49 ·3 | 0 ·73 | 0 ·0068889 | 16 32 ·2 | 16 27 ·0 | 60 41 ·1 | 60 22 ·[illegible] |
| 21 | 118 30 5 ·2 | 0 ·75 | 0 ·0068523 | 16 21 ·0 | 16 14 ·3 | 60 0 ·0 | 59 35 ·[illegible] |
| 22 | 119 27 21 ·8 | 0 ·73 | 0 ·0068143 | 16 6 ·9 | 15 59 ·3 | 59 8 ·3 | 58 40 ·[illegible] |
| 23 | 120 24 39 ·2 | 0 ·68 | 0 ·0067748 | 15 51 ·4 | 15 43 ·6 | 58 11 ·4 | 57 42 ·[illegible] |
| 24 | 121 21 57 ·5 | 0 ·61 | 0 ·0067337 | 15 35 ·9 | 15 28 ·4 | 57 14 ·4 | 56 47 ·[illegible] |
| 25 | 122 19 16 ·8 | 0 ·51 | 0 ·0066910 | 15 21 ·5 | 15 14 ·9 | 56 21 ·5 | 55 57 ·[illegible] |
| 26 | 123 16 37 ·1 | 0 ·39 | 0 ·0066465 | 15 8 ·9 | 15 3 ·5 | 55 35 ·5 | 55 15 ·[illegible] |
| 27 | 124 13 58 ·5 | 0 ·27 | 0 ·0066001 | 14 58 ·7 | 14 54 ·6 | 54 58 ·1 | 54 43 ·[illegible] |
| 28 | 125 11 20 ·9 | 0 ·14 | 0 ·0065518 | 14 51 ·1 | 14 48 ·2 | 54 30 ·2 | 54 19 ·[illegible] |
| 29 | 126 8 44 ·4 | N.0 ·01 | 0 ·0065014 | 14 46 ·0 | 14 44 ·4 | 54 11 ·4 | 54 5 ·[illegible] |
| 30 | 127 6 9 ·0 | S.0 ·11 | 0 ·0064488 | 14 43 ·2 | 14 42 ·6 | 54 1 ·2 | 53 59 ·[illegible] |
| 31 | 128 3 34 ·7 | 0 ·22 | 0 ·0063938 | 14 42 ·5 | 14 42 ·8 | 53 58 ·7 | 53 59 ·[illegible] |
| 32 | 129 1 1 ·5 | S.0 ·30 | 0 ·0063365 | 14 43 ·7 | 14 44 ·8 | 54 2 ·8 | 54 6 ·[illegible] |

## MEAN TIME.

### THE MOON'S

| Day of the Month. | Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| 1 | 64 45 45·5 | 70 41 49·5 | S. 0 52 34·1 | S. 1 23 51·0 | 26·5 | 22 17·8 |
| 2 | 76 36 58·8 | 82 31 34·1 | 1 54 12·1 | 2 23 10·9 | 27·5 | 23 6·1 |
| 3 | 88 25 51·4 | 94 20 16·5 | 2 50 33·7 | 3 16 3·7 | 28·5 | 23 53·8 |
| 4 | 100 14 56·0 | 106 10 6·5 | 3 39 26·5 | 4 0 27·4 | 29·5 | ó |
| 5 | 112 6 1·5 | 118 2 53·2 | 4 18 53·3 | 4 34 32·4 | 0·8 | 0 40·5 |
| 6 | 124 0 54·0 | 130 0 16·4 | 4 47 13·4 | 4 56 47·3 | 1·8 | 1 26·0 |
| 7 | 136 1 13·8 | 142 4 0·4 | 5 3 6·4 | 5 6 3·9 | 2·8 | 2 10·4 |
| 8 | 148 8 51·6 | 154 16 4·6 | 5 5 35·1 | 5 1 36·8 | 3·8 | 2 54·1 |
| 9 | 160 25 58·0 | 166 38 52·7 | 4 54 7·0 | 4 43 5·8 | 4·8 | 3 37·6 |
| 10 | 172 55 10·1 | 179 15 13·9 | 4 28 35·1 | 4 10 38·7 | 5·8 | 4 21·7 |
| 11 | 185 39 28·4 | 192 8 18·4 | 3 49 22·5 | 3 24 54·3 | 6·8 | 5 7·2 |
| 12 | 198 42 8·1 | 205 21 21·1 | 2 57 26·0 | 2 27 11·3 | 7·8 | 5 55·2 |
| 13 | 212 6 18·2 | 218 57 16·7 | 1 54 27·8 | 1 19 37·2 | 8·8 | 6 46·4 |
| 14 | 225 54 29·1 | 232 58 1·0 | S. 0 43 5·3 | S. 0 5 22·2 | 9·8 | 7 41·4 |
| 15 | 240 7 49·8 | 247 23 43·5 | N. 0 32 58·0 | N. 1 11 16·3 | 10·8 | 8 40·3 |
| 16 | 254 45 18·3 | 262 11 59·1 | 1 48 51·1 | 2 24 58·2 | 11·8 | 9 42·2 |
| 17 | 269 42 58·1 | 277 17 16·5 | 2 58 52·9 | 3 29 51·6 | 12·8 | 10 45·2 |
| 18 | 284 53 45·0 | 292 31 6·9 | 3 57 13·0 | 4 20 22·6 | 13·8 | 11 47·2 |
| 19 | 300 8 0·8 | 307 43 5·0 | 4 38 51·7 | 4 52 20·4 | 14·8 | 12 46·7 |
| 20 | 315 15 0·5 | 322 42 34·9 | 5 0 37·3 | 5 3 41·0 | 15·8 | 13 42·9 |
| 21 | 330 4 45·9 | 337 20 42·2 | 5 1 38·3 | 4 54 43·1 | 16·8 | 14 35·9 |
| 22 | 344 29 46·3 | 351 31 34·0 | 4 43 15·4 | 4 27 39·8 | 17·8 | 15 26·4 |
| 23 | 358 25 53·7 | 5 12 46·0 | 4 8 23·6 | 3 45 55·3 | 18·8 | 16 15·1 |
| 24 | 11 52 21·5 | 18 24 59·9 | 3 20 44·0 | 2 53 18·4 | 19·8 | 17 2·9 |
| 25 | 24 51 7·5 | 31 11 16·0 | 2 24 6·0 | 1 53 32·1 | 20·8 | 17 50·5 |
| 26 | 37 26 0·7 | 43 35 59·7 | 1 22 2·1 | N. 0 49 58·0 | 21·8 | 18 38·2 |
| 27 | 49 41 51·3 | 55 44 14·9 | N. 0 17 41·2 | S. 0 14 28·4 | 22·8 | 19 26·2 |
| 28 | 61 43 49·1 | 67 41 10·9 | S. 0 46 11·7 | 1 17 10·9 | 23·8 | 20 14·5 |
| 29 | 73 36 55·5 | 79 31 36·1 | 1 47 9·8 | 2 15 51·5 | 24·8 | 21 2·8 |
| 30 | 85 25 43·0 | 91 19 44·0 | 2 43 0·2 | 3 8 21·1 | 25·8 | 21 50·7 |
| 31 | 97 14 3·7 | 103 9 4·1 | 3 31 39·6 | 3 52 41·3 | 26·8 | 22 37·8 |
| 32 | 109 5 3·7 | 115 2 18·6 | S. 4 11 13·8 | S. 4 27 3·8 | 27·8 | 23 23·9 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 11 53 ·90 | N.20 14 35 ·9 | 27 ·27 |
| 1 | 4 14 0 ·56 | 20 17 19 ·5 | 26 ·30 |
| 2 | 4 16 7 ·26 | 20 19 57 ·3 | 25 ·35 |
| 3 | 4 18 13 ·98 | 20 22 29 ·4 | 24 ·40 |
| 4 | 4 20 20 ·74 | 20 24 55 ·8 | 23 ·43 |
| 5 | 4 22 27 ·52 | 20 27 16 ·4 | 22 ·47 |
| 6 | 4 24 34 ·32 | 20 29 31 ·2 | 21 ·52 |
| 7 | 4 26 41 ·15 | 20 31 40 ·3 | 20 ·53 |
| 8 | 4 28 48 ·01 | 20 33 43 ·5 | 19 ·58 |
| 9 | 4 30 54 ·88 | 20 35 41 ·0 | 18 ·62 |
| 10 | 4 33 1 ·77 | 20 37 32 ·7 | 17 ·65 |
| 11 | 4 35 8 ·68 | 20 39 18 ·6 | 16 ·68 |
| 12 | 4 37 15 ·60 | 20 40 58 ·7 | 15 ·72 |
| 13 | 4 39 22 ·54 | 20 42 33 ·0 | 14 ·73 |
| 14 | 4 41 29 ·49 | 20 44 1 ·4 | 13 ·77 |
| 15 | 4 43 36 ·45 | 20 45 24 ·0 | 12 ·80 |
| 16 | 4 45 43 ·41 | 20 46 40 ·8 | 11 ·83 |
| 17 | 4 47 50 ·38 | 20 47 51 ·8 | 10 ·85 |
| 18 | 4 49 57 ·36 | 20 48 56 ·9 | 9 ·88 |
| 19 | 4 52 4 ·34 | 20 49 56 ·2 | 8 ·90 |
| 20 | 4 54 11 ·31 | 20 50 49 ·6 | 7 ·93 |
| 21 | 4 56 18 ·29 | 20 51 37 ·2 | 6 ·97 |
| 22 | 4 58 25 ·26 | 20 52 19 ·0 | 5 ·98 |
| 23 | 5 0 32 ·22 | N.20 52 54 ·9 | 5 ·02 |
| | *WEDNESDAY* 2. | | |
| 0 | 5 2 39 ·18 | N.20 53 25 ·0 | 4 ·03 |
| 1 | 5 4 46 ·13 | 20 53 49 ·2 | 3 ·07 |
| 2 | 5 6 53 ·07 | 20 54 7 ·6 | 2 ·10 |
| 3 | 5 8 59 ·98 | 20 54 20 ·2 | 1 ·12 |
| 4 | 5 11 6 ·89 | 20 54 26 ·9 | 0 ·15 |
| 5 | 5 13 13 ·77 | 20 54 27 ·8 | 0 ·83 |
| 6 | 5 15 20 ·64 | 20 54 22 ·8 | 1 ·80 |
| 7 | 5 17 27 ·48 | 20 54 12 ·0 | 2 ·77 |
| 8 | 5 19 34 ·30 | 20 53 55 ·4 | 3 ·75 |
| 9 | 5 21 41 ·09 | 20 53 32 ·9 | 4 ·70 |
| 10 | 5 23 47 ·85 | 20 53 4 ·7 | 5 ·68 |
| 11 | 5 25 54 ·58 | 20 52 30 ·6 | 6 ·65 |
| 12 | 5 28 1 ·28 | 20 51 50 ·7 | 7 ·62 |
| 13 | 5 30 7 ·95 | 20 51 5 ·0 | 8 ·58 |
| 14 | 5 32 14 ·58 | 20 50 13 ·5 | 9 ·55 |
| 15 | 5 34 21 ·17 | 20 49 16 ·2 | 10 ·52 |
| 16 | 5 36 27 ·72 | 20 48 13 ·1 | 11 ·47 |
| 17 | 5 38 34 ·22 | 20 47 4 ·3 | 12 ·43 |
| 18 | 5 40 40 ·68 | 20 45 49 ·7 | 13 ·40 |
| 19 | 5 42 47 ·10 | 20 44 29 ·3 | 14 ·35 |
| 20 | 5 44 53 ·46 | 20 43 3 ·2 | 15 ·32 |
| 21 | 5 46 59 ·78 | 20 41 31 ·3 | 16 ·25 |
| 22 | 5 49 6 ·04 | 20 39 53 ·8 | 17 ·22 |
| 23 | 5 51 12 ·25 | 20 38 10 ·5 | 18 ·17 |
| 24 | 5 53 18 ·39 | N.20 36 21 ·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 5 53 18 ·39 | N.20 36 21 ·5 | 19 ·10 |
| 1 | 5 55 24 ·48 | 20 34 26 ·9 | 20 ·07 |
| 2 | 5 57 30 ·51 | 20 32 26 ·5 | 21 ·00 |
| 3 | 5 59 36 ·48 | 20 30 20 ·5 | 21 ·93 |
| 4 | 6 1 42 ·39 | 20 28 8 ·9 | 22 ·88 |
| 5 | 6 3 48 ·22 | 20 25 51 ·6 | 23 ·82 |
| 6 | 6 5 53 ·99 | 20 23 28 ·7 | 24 ·75 |
| 7 | 6 7 59 ·70 | 20 21 0 ·2 | 25 ·68 |
| 8 | 6 10 5 ·33 | 20 18 26 ·1 | 26 ·60 |
| 9 | 6 12 10 ·88 | 20 15 46 ·5 | 27 ·55 |
| 10 | 6 14 16 ·37 | 20 13 1 ·2 | 28 ·47 |
| 11 | 6 16 21 ·77 | 20 10 10 ·4 | 29 ·38 |
| 12 | 6 18 27 ·10 | 20 7 14 ·1 | 30 ·30 |
| 13 | 6 20 32 ·35 | 20 4 12 ·3 | 31 ·23 |
| 14 | 6 22 37 ·52 | 20 1 4 ·9 | 32 ·13 |
| 15 | 6 24 42 ·61 | 19 57 52 ·1 | 33 ·05 |
| 16 | 6 26 47 ·61 | 19 54 33 ·8 | 33 ·95 |
| 17 | 6 28 52 ·52 | 19 51 10 ·1 | 34 ·85 |
| 18 | 6 30 57 ·35 | 19 47 41 ·0 | 35 ·77 |
| 19 | 6 33 2 ·09 | 19 44 6 ·4 | 36 ·65 |
| 20 | 6 35 6 ·75 | 19 40 26 ·5 | 37 ·55 |
| 21 | 6 37 11 ·30 | 19 36 41 ·2 | 38 ·43 |
| 22 | 6 39 15 ·77 | 19 32 50 ·6 | 39 ·32 |
| 23 | 6 41 20 ·14 | N.19 28 54 ·7 | 40 ·20 |
| | *FRIDAY* 4. | | |
| 0 | 6 43 24 ·41 | N.19 24 53 ·5 | 41 ·08 |
| 1 | 6 45 28 ·59 | 19 20 47 ·0 | 41 ·95 |
| 2 | 6 47 32 ·67 | 19 16 35 ·3 | 42 ·82 |
| 3 | 6 49 36 ·65 | 19 12 18 ·4 | 43 ·70 |
| 4 | 6 51 40 ·53 | 19 7 56 ·2 | 44 ·55 |
| 5 | 6 53 44 ·31 | 19 3 28 ·9 | 45 ·42 |
| 6 | 6 55 47 ·98 | 18 58 56 ·4 | 46 ·27 |
| 7 | 6 57 51 ·55 | 18 54 18 ·8 | 47 ·12 |
| 8 | 6 59 55 ·02 | 18 49 36 ·1 | 47 ·97 |
| 9 | 7 1 58 ·38 | 18 44 48 ·3 | 48 ·80 |
| 10 | 7 4 1 ·64 | 18 39 55 ·5 | 49 ·65 |
| 11 | 7 6 4 ·79 | 18 34 57 ·6 | 50 ·48 |
| 12 | 7 8 7 ·83 | 18 29 54 ·7 | 51 ·32 |
| 13 | 7 10 10 ·76 | 18 24 46 ·8 | 52 ·13 |
| 14 | 7 12 13 ·59 | 18 19 34 ·0 | 52 ·95 |
| 15 | 7 14 16 ·30 | 18 14 16 ·3 | 53 ·77 |
| 16 | 7 16 18 ·91 | 18 8 53 ·7 | 54 ·58 |
| 17 | 7 18 21 ·40 | 18 3 26 ·2 | 55 ·40 |
| 18 | 7 20 23 ·78 | 17 57 53 ·8 | 56 ·18 |
| 19 | 7 22 26 ·05 | 17 52 16 ·7 | 57 ·00 |
| 20 | 7 24 28 ·20 | 17 46 34 ·7 | 57 ·78 |
| 21 | 7 26 30 ·25 | 17 40 48 ·0 | 58 ·57 |
| 22 | 7 28 32 ·17 | 17 34 56 ·6 | 59 ·37 |
| 23 | 7 30 33 ·99 | 17 29 0 ·4 | 60 ·13 |
| 24 | 7 32 35 ·69 | N.17 22 59 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 7 32 35 ·69 | N.17 22 59 ·6 | 60 ·92 |
| 1 | 7 34 37 ·28 | 17 16 54 ·1 | 61 ·67 |
| 2 | 7 36 38 ·75 | 17 10 44 ·1 | 62 ·45 |
| 3 | 7 38 40 ·11 | 17 4 29 ·4 | 63 ·20 |
| 4 | 7 40 41 ·35 | 16 58 10 ·2 | 63 ·95 |
| 5 | 7 42 42 ·48 | 16 51 46 ·5 | 64 ·72 |
| 6 | 7 44 43 ·49 | 16 45 18 ·2 | 65 ·43 |
| 7 | 7 46 44 ·38 | 16 38 45 ·6 | 66 ·18 |
| 8 | 7 48 45 ·17 | 16 32 8 ·5 | 66 ·92 |
| 9 | 7 50 45 ·83 | 16 25 27 ·0 | 67 ·65 |
| 10 | 7 52 46 ·38 | 16 18 41 ·1 | 68 ·37 |
| 11 | 7 54 46 ·81 | 16 11 50 ·9 | 69 ·08 |
| 12 | 7 56 47 ·13 | 16 4 56 ·4 | 69 ·78 |
| 13 | 7 58 47 ·34 | 15 57 57 ·7 | 70 ·50 |
| 14 | 8 0 47 ·43 | 15 50 54 ·7 | 71 ·20 |
| 15 | 8 2 47 ·41 | 15 43 47 ·5 | 71 ·90 |
| 16 | 8 4 47 ·27 | 15 36 36 ·1 | 72 ·58 |
| 17 | 8 6 47 ·03 | 15 29 20 ·6 | 73 ·27 |
| 18 | 8 8 46 ·67 | 15 22 1 ·0 | 73 ·93 |
| 19 | 8 10 46 ·20 | 15 14 37 ·4 | 74 ·62 |
| 20 | 8 12 45 ·62 | 15 7 9 ·7 | 75 ·28 |
| 21 | 8 14 44 ·93 | 14 59 38 ·0 | 75 ·95 |
| 22 | 8 16 44 ·13 | 14 52 2 ·3 | 76 ·62 |
| 23 | 8 18 43 ·22 | N.14 44 22 ·6 | 77 ·25 |
| | *SUNDAY* 6. | | |
| 0 | 8 20 42 ·21 | N.14 36 39 ·1 | 77 ·90 |
| 1 | 8 22 41 ·09 | 14 28 51 ·7 | 78 ·55 |
| 2 | 8 24 39 ·85 | 14 21 0 ·4 | 79 ·17 |
| 3 | 8 26 38 ·52 | 14 13 5 ·4 | 79 ·82 |
| 4 | 8 28 37 ·08 | 14 5 6 ·5 | 80 ·42 |
| 5 | 8 30 35 ·53 | 13 57 4 ·0 | 81 ·05 |
| 6 | 8 32 33 ·88 | 13 48 57 ·7 | 81 ·67 |
| 7 | 8 34 32 ·13 | 13 40 47 ·7 | 82 ·27 |
| 8 | 8 36 30 ·28 | 13 32 34 ·1 | 82 ·87 |
| 9 | 8 38 28 ·33 | 13 24 16 ·9 | 83 ·45 |
| 10 | 8 40 26 ·28 | 13 15 56 ·2 | 84 ·05 |
| 11 | 8 42 24 ·13 | 13 7 31 ·9 | 84 ·63 |
| 12 | 8 44 21 ·89 | 12 59 4 ·1 | 85 ·22 |
| 13 | 8 46 19 ·55 | 12 50 32 ·8 | 85 ·77 |
| 14 | 8 48 17 ·12 | 12 41 58 ·2 | 86 ·35 |
| 15 | 8 50 14 ·60 | 12 33 20 ·1 | 86 ·90 |
| 16 | 8 52 11 ·99 | 12 24 38 ·7 | 87 ·47 |
| 17 | 8 54 9 ·29 | 12 15 53 ·9 | 88 ·00 |
| 18 | 8 56 6 ·50 | 12 7 5 ·9 | 88 ·55 |
| 19 | 8 58 3 ·62 | 11 58 14 ·6 | 89 ·08 |
| 20 | 9 0 0 ·66 | 11 49 20 ·1 | 89 ·62 |
| 21 | 9 1 57 ·62 | 11 40 22 ·4 | 90 ·13 |
| 22 | 9 3 54 ·50 | 11 31 21 ·6 | 90 ·67 |
| 23 | 9 5 51 ·29 | 11 22 17 ·6 | 91 ·17 |
| 24 | 9 7 48 ·01 | N.11 13 10 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 7 48 ·01 | N.11 13 10 ·6 | 91 ·67 |
| 1 | 9 9 44 ·65 | 11 4 0 ·6 | 92 ·18 |
| 2 | 9 11 41 ·22 | 10 54 47 ·5 | 92 ·67 |
| 3 | 9 13 37 ·71 | 10 45 31 ·5 | 93 ·15 |
| 4 | 9 15 34 ·14 | 10 36 12 ·6 | 93 ·63 |
| 5 | 9 17 30 ·49 | 10 26 50 ·8 | 94 ·12 |
| 6 | 9 19 26 ·78 | 10 17 26 ·1 | 94 ·58 |
| 7 | 9 21 23 ·00 | 10 7 58 ·6 | 95 ·05 |
| 8 | 9 23 19 ·17 | 9 58 28 ·3 | 95 ·50 |
| 9 | 9 25 15 ·27 | 9 48 55 ·3 | 95 ·95 |
| 10 | 9 27 11 ·31 | 9 39 19 ·6 | 96 ·40 |
| 11 | 9 29 7 ·29 | 9 29 41 ·2 | 96 ·85 |
| 12 | 9 31 3 ·22 | 9 20 0 ·1 | 97 ·28 |
| 13 | 9 32 59 ·10 | 9 10 16 ·4 | 97 ·70 |
| 14 | 9 34 54 ·92 | 9 0 30 ·2 | 98 ·12 |
| 15 | 9 36 50 ·69 | 8 50 41 ·5 | 98 ·55 |
| 16 | 9 38 46 ·42 | 8 40 50 ·2 | 98 ·95 |
| 17 | 9 40 42 ·11 | 8 30 56 ·5 | 99 ·35 |
| 18 | 9 42 37 ·75 | 8 21 0 ·4 | 99 ·75 |
| 19 | 9 44 33 ·36 | 8 11 1 ·9 | 100 ·15 |
| 20 | 9 46 28 ·93 | 8 1 1 ·0 | 100 ·53 |
| 21 | 9 48 24 ·46 | 7 50 57 ·8 | 100 ·90 |
| 22 | 9 50 19 ·97 | 7 40 52 ·4 | 101 ·28 |
| 23 | 9 52 15 ·44 | N. 7 30 44 ·7 | 101 ·65 |
| | *TUESDAY* 8. | | |
| 0 | 9 54 10 ·88 | N. 7 20 34 ·8 | 102 ·00 |
| 1 | 9 56 6 ·30 | 7 10 22 ·8 | 102 ·37 |
| 2 | 9 58 1 ·70 | 7 0 8 ·6 | 102 ·72 |
| 3 | 9 59 57 ·08 | 6 49 52 ·3 | 103 ·05 |
| 4 | 10 1 52 ·44 | 6 39 34 ·0 | 103 ·38 |
| 5 | 10 3 47 ·79 | 6 29 13 ·7 | 103 ·72 |
| 6 | 10 5 43 ·13 | 6 18 51 ·4 | 104 ·03 |
| 7 | 10 7 38 ·46 | 6 8 27 ·2 | 104 ·37 |
| 8 | 10 9 33 ·78 | 5 58 1 ·0 | 104 ·67 |
| 9 | 10 11 29 ·10 | 5 47 33 ·0 | 104 ·97 |
| 10 | 10 13 24 ·41 | 5 37 3 ·2 | 105 ·27 |
| 11 | 10 15 19 ·73 | 5 26 31 ·6 | 105 ·57 |
| 12 | 10 17 15 ·06 | 5 15 58 ·2 | 105 ·85 |
| 13 | 10 19 10 ·39 | 5 5 23 ·1 | 106 ·12 |
| 14 | 10 21 5 ·73 | 4 54 46 ·4 | 106 ·40 |
| 15 | 10 23 1 ·08 | 4 44 8 ·0 | 106 ·67 |
| 16 | 10 24 56 ·45 | 4 33 28 ·0 | 106 ·92 |
| 17 | 10 26 51 ·83 | 4 22 46 ·5 | 107 ·18 |
| 18 | 10 28 47 ·24 | 4 12 3 ·4 | 107 ·42 |
| 19 | 10 30 42 ·68 | 4 1 18 ·9 | 107 ·67 |
| 20 | 10 32 38 ·14 | 3 50 32 ·9 | 107 ·90 |
| 21 | 10 34 33 ·63 | 3 39 45 ·5 | 108 ·12 |
| 22 | 10 36 29 ·16 | 3 28 56 ·8 | 108 ·35 |
| 23 | 10 38 24 ·72 | 3 18 6 ·7 | 108 ·57 |
| 24 | 10 40 20 ·33 | N. 3 7 15 ·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 40 20 ·33 | N.3 7 15 ·3 | 108 ·77 |
| 1 | 10 42 15 ·98 | 2 56 22 ·7 | 108 ·97 |
| 2 | 10 44 11 ·67 | 2 45 28 ·9 | 109 ·17 |
| 3 | 10 46 7 ·42 | 2 34 33 ·9 | 109 ·35 |
| 4 | 10 48 3 ·22 | 2 23 37 ·8 | 109 ·53 |
| 5 | 10 49 59 ·07 | 2 12 40 ·6 | 109 ·72 |
| 6 | 10 51 54 ·98 | 2 1 42 ·3 | 109 ·87 |
| 7 | 10 53 50 ·96 | 1 50 43 ·1 | 110 ·05 |
| 8 | 10 55 47 ·00 | 1 39 42 ·8 | 110 ·18 |
| 9 | 10 57 43 ·11 | 1 28 41 ·7 | 110 ·33 |
| 10 | 10 59 39 ·29 | 1 17 39 ·7 | 110 ·48 |
| 11 | 11 1 35 ·54 | 1 6 36 ·8 | 110 ·62 |
| 12 | 11 3 31 ·88 | 0 55 33 ·1 | 110 ·73 |
| 13 | 11 5 28 ·30 | 0 44 28 ·7 | 110 ·87 |
| 14 | 11 7 24 ·80 | 0 33 23 ·5 | 110 ·97 |
| 15 | 11 9 21 ·38 | 0 22 17 ·7 | 111 ·08 |
| 16 | 11 11 18 ·06 | 0 11 11 ·2 | 111 ·18 |
| 17 | 11 13 14 ·84 | N.0 0 4 ·1 | 111 ·27 |
| 18 | 11 15 11 ·71 | S.0 11 3 ·5 | 111 ·35 |
| 19 | 11 17 8 ·69 | 0 22 11 ·6 | 111 ·43 |
| 20 | 11 19 5 ·77 | 0 33 20 ·2 | 111 ·50 |
| 21 | 11 21 2 ·95 | 0 44 29 ·2 | 111 ·57 |
| 22 | 11 23 0 ·25 | 0 55 38 ·6 | 111 ·63 |
| 23 | 11 24 57 ·67 | S.1 6 48 ·4 | 111 ·67 |
| | *THURSDAY* 10. | | |
| 0 | 11 26 55 ·20 | S.1 17 58 ·4 | 111 ·72 |
| 1 | 11 28 52 ·86 | 1 29 8 ·7 | 111 ·75 |
| 2 | 11 30 50 ·64 | 1 40 19 ·2 | 111 ·77 |
| 3 | 11 32 48 ·56 | 1 51 29 ·8 | 111 ·80 |
| 4 | 11 34 46 ·60 | 2 2 40 ·6 | 111 ·80 |
| 5 | 11 36 44 ·78 | 2 13 51 ·4 | 111 ·82 |
| 6 | 11 38 43 ·11 | 2 25 2 ·3 | 111 ·80 |
| 7 | 11 40 41 ·58 | 2 36 13 ·1 | 111 ·80 |
| 8 | 11 42 40 ·19 | 2 47 23 ·9 | 111 ·77 |
| 9 | 11 44 38 ·95 | 2 58 34 ·5 | 111 ·75 |
| 10 | 11 46 37 ·87 | 3 9 45 ·0 | 111 ·72 |
| 11 | 11 48 36 ·95 | 3 20 55 ·3 | 111 ·67 |
| 12 | 11 50 36 ·19 | 3 32 5 ·3 | 111 ·62 |
| 13 | 11 52 35 ·59 | 3 43 15 ·0 | 111 ·57 |
| 14 | 11 54 35 ·17 | 3 54 24 ·4 | 111 ·48 |
| 15 | 11 56 34 ·91 | 4 5 33 ·3 | 111 ·42 |
| 16 | 11 58 34 ·83 | 4 16 41 ·8 | 111 ·33 |
| 17 | 12 0 34 ·93 | 4 27 49 ·8 | 111 ·25 |
| 18 | 12 2 35 ·21 | 4 38 57 ·3 | 111 ·13 |
| 19 | 12 4 35 ·68 | 4 50 4 ·1 | 111 ·03 |
| 20 | 12 6 36 ·35 | 5 1 10 ·3 | 110 ·92 |
| 21 | 12 8 37 ·20 | 5 12 15 ·8 | 110 ·78 |
| 22 | 12 10 38 ·25 | 5 23 20 ·5 | 110 ·65 |
| 23 | 12 12 39 ·50 | 5 34 24 ·4 | 110 ·52 |
| 24 | 12 14 40 ·96 | S.5 45 27 ·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 14 40 ·96 | S. 5 45 27 ·5 | 110 ·35 |
| 1 | 12 16 42 ·63 | 5 56 29 ·6 | 110 ·20 |
| 2 | 12 18 44 ·51 | 6 7 30 ·8 | 110 ·03 |
| 3 | 12 20 46 ·60 | 6 18 31 ·0 | 109 ·85 |
| 4 | 12 22 48 ·91 | 6 29 30 ·1 | 109 ·65 |
| 5 | 12 24 51 ·45 | 6 40 28 ·0 | 109 ·47 |
| 6 | 12 26 54 ·21 | 6 51 24 ·8 | 109 ·27 |
| 7 | 12 28 57 ·21 | 7 2 20 ·4 | 109 ·03 |
| 8 | 12 31 0 ·43 | 7 13 14 ·6 | 108 ·83 |
| 9 | 12 33 3 ·89 | 7 24 7 ·6 | 108 ·58 |
| 10 | 12 35 7 ·60 | 7 34 59 ·1 | 108 ·33 |
| 11 | 12 37 11 ·54 | 7 45 49 ·1 | 108 ·10 |
| 12 | 12 39 15 ·73 | 7 56 37 ·7 | 107 ·83 |
| 13 | 12 41 20 ·17 | 8 7 24 ·7 | 107 ·57 |
| 14 | 12 43 24 ·87 | 8 18 10 ·1 | 107 ·27 |
| 15 | 12 45 29 ·82 | 8 28 53 ·7 | 107 ·00 |
| 16 | 12 47 35 ·04 | 8 39 35 ·7 | 106 ·68 |
| 17 | 12 49 40 ·52 | 8 50 15 ·8 | 106 ·38 |
| 18 | 12 51 46 ·27 | 9 0 54 ·1 | 106 ·05 |
| 19 | 12 53 52 ·29 | 9 11 30 ·4 | 105 ·73 |
| 20 | 12 55 58 ·58 | 9 22 4 ·8 | 105 ·37 |
| 21 | 12 58 5 ·15 | 9 32 37 ·0 | 105 ·03 |
| 22 | 13 0 12 ·00 | 9 43 7 ·2 | 104 ·67 |
| 23 | 13 2 19 ·14 | S. 9 53 35 ·2 | 104 ·30 |
| | *SATURDAY* 12. | | |
| 0 | 13 4 26 ·56 | S. 10 4 1 ·0 | 103 ·92 |
| 1 | 13 6 34 ·28 | 10 14 24 ·5 | 103 ·52 |
| 2 | 13 8 42 ·29 | 10 24 45 ·6 | 103 ·10 |
| 3 | 13 10 50 ·59 | 10 35 4 ·2 | 102 ·70 |
| 4 | 13 12 59 ·20 | 10 45 20 ·4 | 102 ·27 |
| 5 | 13 15 8 ·11 | 10 55 34 ·0 | 101 ·83 |
| 6 | 13 17 17 ·33 | 11 5 45 ·0 | 101 ·37 |
| 7 | 13 19 26 ·86 | 11 15 53 ·2 | 100 ·92 |
| 8 | 13 21 36 ·70 | 11 25 58 ·7 | 100 ·45 |
| 9 | 13 23 46 ·86 | 11 36 1 ·4 | 99 ·97 |
| 10 | 13 25 57 ·33 | 11 46 1 ·2 | 99 ·47 |
| 11 | 13 28 8 ·13 | 11 55 58 ·0 | 98 ·95 |
| 12 | 13 30 19 ·24 | 12 5 51 ·7 | 98 ·45 |
| 13 | 13 32 30 ·69 | 12 15 42 ·4 | 97 ·90 |
| 14 | 13 34 42 ·46 | 12 25 29 ·8 | 97 ·37 |
| 15 | 13 36 54 ·56 | 12 35 14 ·0 | 96 ·82 |
| 16 | 13 39 7 ·01 | 12 44 54 ·9 | 96 ·25 |
| 17 | 13 41 19 ·78 | 12 54 32 ·4 | 95 ·68 |
| 18 | 13 43 32 ·90 | 13 4 6 ·5 | 95 ·08 |
| 19 | 13 45 46 ·35 | 13 13 37 ·0 | 94 ·48 |
| 20 | 13 48 0 ·15 | 13 23 3 ·9 | 93 ·87 |
| 21 | 13 50 14 ·30 | 13 32 27 ·1 | 93 ·23 |
| 22 | 13 52 28 ·79 | 13 41 46 ·5 | 92 ·60 |
| 23 | 13 54 43 ·63 | 13 51 2 ·1 | 91 ·95 |
| 24 | 13 56 58 ·83 | S. 14 0 13 ·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 56 58 ·83 | S. 14 0 13 ·8 | 91 ·28 |
| 1 | 13 59 14 ·38 | 14 9 21 ·5 | 90 ·62 |
| 2 | 14 1 30 ·28 | 14 18 25 ·2 | 89 ·92 |
| 3 | 14 3 46 ·54 | 14 27 24 ·7 | 89 ·22 |
| 4 | 14 6 3 ·17 | 14 36 20 ·0 | 88 ·52 |
| 5 | 14 8 20 ·15 | 14 45 11 ·1 | 87 ·77 |
| 6 | 14 10 37 ·50 | 14 53 57 ·7 | 87 ·03 |
| 7 | 14 12 55 ·21 | 15 2 39 ·9 | 86 ·28 |
| 8 | 14 15 13 ·28 | 15 11 17 ·6 | 85 ·52 |
| 9 | 14 17 31 ·73 | 15 19 50 ·7 | 84 ·73 |
| 10 | 14 19 50 ·53 | 15 28 19 ·1 | 83 ·95 |
| 11 | 14 22 9 ·71 | 15 36 42 ·8 | 83 ·13 |
| 12 | 14 24 29 ·26 | 15 45 1 ·6 | 82 ·32 |
| 13 | 14 26 49 ·18 | 15 53 15 ·5 | 81 ·50 |
| 14 | 14 29 9 ·47 | 16 1 24 ·5 | 80 ·63 |
| 15 | 14 31 30 ·13 | 16 9 28 ·3 | 79 ·78 |
| 16 | 14 33 51 ·16 | 16 17 27 ·0 | 78 ·92 |
| 17 | 14 36 12 ·57 | 16 25 20 ·5 | 78 ·02 |
| 18 | 14 38 34 ·36 | 16 33 8 ·6 | 77 ·13 |
| 19 | 14 40 56 ·51 | 16 40 51 ·4 | 76 ·22 |
| 20 | 14 43 19 ·04 | 16 48 28 ·7 | 75 ·28 |
| 21 | 14 45 41 ·94 | 16 56 0 ·4 | 74 ·35 |
| 22 | 14 48 5 ·22 | 17 3 26 ·5 | 73 ·38 |
| 23 | 14 50 28 ·87 | S. 17 10 46 ·8 | 72 ·43 |
| | *MONDAY* 14. | | |
| 0 | 14 52 52 ·89 | S. 17 18 1 ·4 | 71 ·45 |
| 1 | 14 55 17 ·29 | 17 25 10 ·1 | 70 ·45 |
| 2 | 14 57 42 ·05 | 17 32 12 ·8 | 69 ·45 |
| 3 | 15 0 7 ·19 | 17 39 9 ·5 | 68 ·43 |
| 4 | 15 2 32 ·70 | 17 46 0 ·1 | 67 ·38 |
| 5 | 15 4 58 ·58 | 17 52 44 ·4 | 66 ·35 |
| 6 | 15 7 24 ·82 | 17 59 22 ·5 | 65 ·28 |
| 7 | 15 9 51 ·43 | 18 5 54 ·2 | 64 ·22 |
| 8 | 15 12 18 ·40 | 18 12 19 ·5 | 63 ·12 |
| 9 | 15 14 45 ·74 | 18 18 38 ·2 | 62 ·02 |
| 10 | 15 17 13 ·43 | 18 24 50 ·3 | 60 ·92 |
| 11 | 15 19 41 ·48 | 18 30 55 ·8 | 59 ·78 |
| 12 | 15 22 9 ·89 | 18 36 54 ·5 | 58 ·65 |
| 13 | 15 24 38 ·66 | 18 42 46 ·4 | 57 ·48 |
| 14 | 15 27 7 ·79 | 18 48 31 ·3 | 56 ·32 |
| 15 | 15 29 37 ·26 | 18 54 9 ·2 | 55 ·15 |
| 16 | 15 32 7 ·08 | 18 59 40 ·1 | 53 ·95 |
| 17 | 15 34 37 ·25 | 19 5 3 ·8 | 52 ·75 |
| 18 | 15 37 7 ·76 | 19 10 20 ·3 | 51 ·55 |
| 19 | 15 39 38 ·61 | 19 15 29 ·6 | 50 ·30 |
| 20 | 15 42 9 ·80 | 19 20 31 ·4 | 49 ·07 |
| 21 | 15 44 41 ·32 | 19 25 25 ·8 | 47 ·82 |
| 22 | 15 47 13 ·16 | 19 30 12 ·7 | 46 ·55 |
| 23 | 15 49 45 ·33 | 19 34 52 ·0 | 45 ·27 |
| 24 | 15 52 17 ·82 | S. 19 39 23 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 52 17 ·82 | S. 19 39 23 ·6 | 43 ·98 |
| 1 | 15 54 50 ·63 | 19 43 47 ·5 | 42 ·68 |
| 2 | 15 57 23 ·76 | 19 48 3 ·6 | 41 ·38 |
| 3 | 15 59 57 ·20 | 19 52 11 ·9 | 40 ·05 |
| 4 | 16 2 30 ·94 | 19 56 12 ·2 | 38 ·72 |
| 5 | 16 5 4 ·98 | 20 0 4 ·5 | 37 ·38 |
| 6 | 16 7 39 ·32 | 20 3 48 ·8 | 36 ·02 |
| 7 | 16 10 13 ·94 | 20 7 24 ·9 | 34 ·65 |
| 8 | 16 12 48 ·85 | 20 10 52 ·8 | 33 ·28 |
| 9 | 16 15 24 ·05 | 20 14 12 ·5 | 31 ·90 |
| 10 | 16 17 59 ·52 | 20 17 23 ·9 | 30 ·48 |
| 11 | 16 20 35 ·25 | 20 20 26 ·8 | 29 ·10 |
| 12 | 16 23 11 ·25 | 20 23 21 ·4 | 27 ·68 |
| 13 | 16 25 47 ·51 | 20 26 7 ·5 | 26 ·25 |
| 14 | 16 28 24 ·03 | 20 28 45 ·0 | 24 ·82 |
| 15 | 16 31 0 ·79 | 20 31 13 ·9 | 23 ·38 |
| 16 | 16 33 37 ·80 | 20 33 34 ·2 | 21 ·92 |
| 17 | 16 36 15 ·03 | 20 35 45 ·7 | 20 ·47 |
| 18 | 16 38 52 ·50 | 20 37 48 ·5 | 19 ·00 |
| 19 | 16 41 30 ·19 | 20 39 42 ·5 | 17 ·53 |
| 20 | 16 44 8 ·09 | 20 41 27 ·7 | 16 ·05 |
| 21 | 16 46 46 ·20 | 20 43 4 ·0 | 14 ·55 |
| 22 | 16 49 24 ·52 | 20 44 31 ·3 | 13 ·07 |
| 23 | 16 52 3 ·03 | S. 20 45 49 ·7 | 11 ·57 |
| | *WEDNESDAY* 16. | | |
| 0 | 16 54 41 ·72 | S. 20 46 59 ·1 | 10 ·05 |
| 1 | 16 57 20 ·60 | 20 47 59 ·4 | 8 ·55 |
| 2 | 16 59 59 ·65 | 20 48 50 ·7 | 7 ·02 |
| 3 | 17 2 38 ·87 | 20 49 32 ·8 | 5 ·48 |
| 4 | 17 5 18 ·25 | 20 50 5 ·7 | 3 ·97 |
| 5 | 17 7 57 ·78 | 20 50 29 ·5 | 2 ·43 |
| 6 | 17 10 37 ·45 | 20 50 44 ·1 | 0 ·90 |
| 7 | 17 13 17 ·26 | 20 50 49 ·5 | 0 ·65 |
| 8 | 17 15 57 ·20 | 20 50 45 ·6 | 2 ·20 |
| 9 | 17 18 37 ·27 | 20 50 32 ·4 | 3 ·73 |
| 10 | 17 21 17 ·44 | 20 50 10 ·0 | 5 ·30 |
| 11 | 17 23 57 ·72 | 20 49 38 ·2 | 6 ·85 |
| 12 | 17 26 38 ·10 | 20 48 57 ·1 | 8 ·40 |
| 13 | 17 29 18 ·57 | 20 48 6 ·7 | 9 ·97 |
| 14 | 17 31 59 ·12 | 20 47 6 ·9 | 11 ·53 |
| 15 | 17 34 39 ·75 | 20 45 57 ·7 | 13 ·08 |
| 16 | 17 37 20 ·44 | 20 44 39 ·2 | 14 ·65 |
| 17 | 17 40 1 ·19 | 20 43 11 ·3 | 16 ·20 |
| 18 | 17 42 41 ·99 | 20 41 34 ·1 | 17 ·77 |
| 19 | 17 45 22 ·83 | 20 39 47 ·5 | 19 ·33 |
| 20 | 17 48 3 ·70 | 20 37 51 ·5 | 20 ·90 |
| 21 | 17 50 44 ·60 | 20 35 46 ·1 | 22 ·45 |
| 22 | 17 53 25 ·52 | 20 33 31 ·4 | 24 ·00 |
| 23 | 17 56 6 ·45 | 20 31 7 ·4 | 25 ·57 |
| 24 | 17 58 47 ·38 | S. 20 28 34 ·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 17 58 47 ·38 | S. 20 28 34 ·0 | 27 ·12 |
| 1 | 18 1 28 ·30 | 20 25 51 ·3 | 28 ·68 |
| 2 | 18 4 9 ·21 | 20 22 59 ·2 | 30 ·22 |
| 3 | 18 6 50 ·10 | 20 19 57 ·9 | 31 ·77 |
| 4 | 18 9 30 ·95 | 20 16 47 ·3 | 33 ·30 |
| 5 | 18 12 11 ·77 | 20 13 27 ·5 | 34 ·83 |
| 6 | 18 14 52 ·54 | 20 9 58 ·5 | 36 ·38 |
| 7 | 18 17 33 ·25 | 20 6 20 ·2 | 37 ·90 |
| 8 | 18 20 13 ·91 | 20 2 32 ·8 | 39 ·42 |
| 9 | 18 22 54 ·49 | 19 58 36 ·3 | 40 ·93 |
| 10 | 18 25 35 ·00 | 19 54 30 ·7 | 42 ·43 |
| 11 | 18 28 15 ·43 | 19 50 16 ·1 | 43 ·95 |
| 12 | 18 30 55 ·76 | 19 45 52 ·4 | 45 ·43 |
| 13 | 18 33 35 ·99 | 19 41 19 ·8 | 46 ·93 |
| 14 | 18 36 16 ·11 | 19 36 38 ·2 | 48 ·42 |
| 15 | 18 38 56 ·12 | 19 31 47 ·7 | 49 ·88 |
| 16 | 18 41 36 ·01 | 19 26 48 ·4 | 51 ·35 |
| 17 | 18 44 15 ·77 | 19 21 40 ·3 | 52 ·80 |
| 18 | 18 46 55 ·40 | 19 16 23 ·5 | 54 ·25 |
| 19 | 18 49 34 ·88 | 19 10 58 ·0 | 55 ·70 |
| 20 | 18 52 14 ·21 | 19 5 23 ·8 | 57 ·13 |
| 21 | 18 54 53 ·39 | 18 59 41 ·0 | 58 ·53 |
| 22 | 18 57 32 ·40 | 18 53 49 ·8 | 59 ·97 |
| 23 | 19 0 11 ·25 | S. 18 47 50 ·0 | 61 ·35 |
| | *FRIDAY* 18. | | |
| 0 | 19 2 49 ·93 | S. 18 41 41 ·9 | 62 ·75 |
| 1 | 19 5 28 ·42 | 18 35 25 ·4 | 64 ·13 |
| 2 | 19 8 6 ·72 | 18 29 0 ·6 | 65 ·48 |
| 3 | 19 10 44 ·83 | 18 22 27 ·7 | 66 ·85 |
| 4 | 19 13 22 ·74 | 18 15 46 ·6 | 68 ·20 |
| 5 | 19 16 0 ·45 | 18 8 57 ·4 | 69 ·53 |
| 6 | 19 18 37 ·94 | 18 2 0 ·2 | 70 ·83 |
| 7 | 19 21 15 ·22 | 17 54 55 ·2 | 72 ·15 |
| 8 | 19 23 52 ·28 | 17 47 42 ·3 | 73 ·45 |
| 9 | 19 26 29 ·12 | 17 40 21 ·6 | 74 ·73 |
| 10 | 19 29 5 ·72 | 17 32 53 ·2 | 75 ·98 |
| 11 | 19 31 42 ·09 | 17 25 17 ·3 | 77 ·25 |
| 12 | 19 34 18 ·22 | 17 17 33 ·8 | 78 ·48 |
| 13 | 19 36 54 ·10 | 17 9 42 ·9 | 79 ·72 |
| 14 | 19 39 29 ·74 | 17 1 44 ·6 | 80 ·92 |
| 15 | 19 42 5 ·12 | 16 53 39 ·1 | 82 ·12 |
| 16 | 19 44 40 ·24 | 16 45 26 ·4 | 83 ·30 |
| 17 | 19 47 15 ·10 | 16 37 6 ·6 | 84 ·47 |
| 18 | 19 49 49 ·70 | 16 28 39 ·8 | 85 ·62 |
| 19 | 19 52 24 ·02 | 16 20 6 ·1 | 86 ·75 |
| 20 | 19 54 58 ·07 | 16 11 25 ·6 | 87 ·88 |
| 21 | 19 57 31 ·85 | 16 2 38 ·3 | 88 ·98 |
| 22 | 20 0 5 ·35 | 15 53 44 ·4 | 90 ·07 |
| 23 | 20 2 38 ·57 | 15 44 44 ·0 | 91 ·15 |
| 24 | 20 5 11 ·49 | S. 15 35 37 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 20 5 11 ·49 | S. 15 35 37 ·1 | 92 ·22 |
| 1 | 20 7 44 ·13 | 15 26 23 ·8 | 93 ·25 |
| 2 | 20 10 16 ·48 | 15 17 4 ·3 | 94 ·27 |
| 3 | 20 12 48 ·54 | 15 7 38 ·7 | 95 ·30 |
| 4 | 20 15 20 ·31 | 14 58 6 ·9 | 96 ·28 |
| 5 | 20 17 51 ·77 | 14 48 29 ·2 | 97 ·25 |
| 6 | 20 20 22 ·94 | 14 38 45 ·7 | 98 ·22 |
| 7 | 20 22 53 ·81 | 14 28 56 ·4 | 99 ·17 |
| 8 | 20 25 24 ·37 | 14 19 1 ·4 | 100 ·08 |
| 9 | 20 27 54 ·63 | 14 9 0 ·9 | 101 ·00 |
| 10 | 20 30 24 ·58 | 13 58 54 ·9 | 101 ·90 |
| 11 | 20 32 54 ·22 | 13 48 43 ·5 | 102 ·77 |
| 12 | 20 35 23 ·56 | 13 38 26 ·9 | 103 ·63 |
| 13 | 20 37 52 ·58 | 13 28 5 ·1 | 104 ·47 |
| 14 | 20 40 21 ·30 | 13 17 38 ·3 | 105 ·28 |
| 15 | 20 42 49 ·70 | 13 7 6 ·6 | 106 ·10 |
| 16 | 20 45 17 ·79 | 12 56 30 ·0 | 106 ·88 |
| 17 | 20 47 45 ·57 | 12 45 48 ·7 | 107 ·67 |
| 18 | 20 50 13 ·03 | 12 35 2 ·7 | 108 ·42 |
| 19 | 20 52 40 ·18 | 12 24 12 ·2 | 109 ·15 |
| 20 | 20 55 7 ·01 | 12 13 17 ·3 | 109 ·88 |
| 21 | 20 57 33 ·53 | 12 2 18 ·0 | 110 ·58 |
| 22 | 20 59 59 ·73 | 11 51 14 ·5 | 111 ·28 |
| 23 | 21 2 25 ·62 | S. 11 40 6 ·8 | 111 ·93 |
| | *SUNDAY* 20. | | |
| 0 | 21 4 51 ·20 | S. 11 28 55 ·2 | 112 ·60 |
| 1 | 21 7 16 ·46 | 11 17 39 ·6 | 113 ·22 |
| 2 | 21 9 41 ·41 | 11 6 20 ·3 | 113 ·85 |
| 3 | 21 12 6 ·05 | 10 54 57 ·2 | 114 ·45 |
| 4 | 21 14 30 ·37 | 10 43 30 ·5 | 115 ·05 |
| 5 | 21 16 54 ·38 | 10 32 0 ·2 | 115 ·60 |
| 6 | 21 19 18 ·09 | 10 20 26 ·6 | 116 ·15 |
| 7 | 21 21 41 ·48 | 10 8 49 ·7 | 116 ·68 |
| 8 | 21 24 4 ·57 | 9 57 9 ·6 | 117 ·22 |
| 9 | 21 26 27 ·35 | 9 45 26 ·3 | 117 ·70 |
| 10 | 21 28 49 ·82 | 9 33 40 ·1 | 118 ·18 |
| 11 | 21 31 11 ·99 | 9 21 51 ·0 | 118 ·67 |
| 12 | 21 33 33 ·86 | 9 9 59 ·0 | 119 ·12 |
| 13 | 21 35 55 ·43 | 8 58 4 ·3 | 119 ·53 |
| 14 | 21 38 16 ·69 | 8 46 7 ·1 | 119 ·97 |
| 15 | 21 40 37 ·66 | 8 34 7 ·3 | 120 ·35 |
| 16 | 21 42 58 ·33 | 8 22 5 ·2 | 120 ·75 |
| 17 | 21 45 18 ·71 | 8 10 0 ·7 | 121 ·12 |
| 18 | 21 47 38 ·79 | 7 57 54 ·0 | 121 ·47 |
| 19 | 21 49 58 ·58 | 7 45 45 ·2 | 121 ·80 |
| 20 | 21 52 18 ·09 | 7 33 34 ·4 | 122 ·13 |
| 21 | 21 54 37 ·30 | 7 21 21 ·6 | 122 ·42 |
| 22 | 21 56 56 ·23 | 7 9 7 ·1 | 122 ·73 |
| 23 | 21 59 14 ·88 | 6 56 50 ·7 | 122 ·98 |
| 24 | 22 1 33 ·25 | S. 6 44 32 ·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 1 33 ·25 | S. 6 44 32 ·8 | 123 ·25 |
| 1 | 22 3 51 ·34 | 6 32 13 ·3 | 123 ·48 |
| 2 | 22 6 9 ·15 | 6 19 52 ·4 | 123 ·72 |
| 3 | 22 8 26 ·69 | 6 7 30 ·1 | 123 ·93 |
| 4 | 22 10 43 ·96 | 5 55 6 ·5 | 124 ·13 |
| 5 | 22 13 0 ·96 | 5 42 41 ·7 | 124 ·30 |
| 6 | 22 15 17 ·70 | 5 30 15 ·9 | 124 ·48 |
| 7 | 22 17 34 ·17 | 5 17 49 ·0 | 124 ·63 |
| 8 | 22 19 50 ·38 | 5 5 21 ·2 | 124 ·77 |
| 9 | 22 22 6 ·33 | 4 52 52 ·6 | 124 ·88 |
| 10 | 22 24 22 ·03 | 4 40 23 ·3 | 125 ·00 |
| 11 | 22 26 37 ·48 | 4 27 53 ·3 | 125 ·10 |
| 12 | 22 28 52 ·68 | 4 15 22 ·7 | 125 ·18 |
| 13 | 22 31 7 ·63 | 4 2 51 ·6 | 125 ·23 |
| 14 | 22 33 22 ·33 | 3 50 20 ·2 | 125 ·30 |
| 15 | 22 35 36 ·80 | 3 37 48 ·4 | 125 ·33 |
| 16 | 22 37 51 ·03 | 3 25 16 ·4 | 125 ·37 |
| 17 | 22 40 5 ·02 | 3 12 44 ·2 | 125 ·37 |
| 18 | 22 42 18 ·78 | 3 0 12 ·0 | 125 ·38 |
| 19 | 22 44 32 ·31 | 2 47 39 ·7 | 125 ·37 |
| 20 | 22 46 45 ·61 | 2 35 7 ·5 | 125 ·33 |
| 21 | 22 48 58 ·69 | 2 22 35 ·5 | 125 ·28 |
| 22 | 22 51 11 ·55 | 2 10 3 ·8 | 125 ·25 |
| 23 | 22 53 24 ·19 | S. 1 57 32 ·3 | 125 ·18 |
| | *TUESDAY* 22. | | |
| 0 | 22 55 36 ·63 | S. 1 45 1 ·2 | 125 ·10 |
| 1 | 22 57 48 ·85 | 1 32 30 ·6 | 125 ·02 |
| 2 | 23 0 0 ·86 | 1 20 0 ·5 | 124 ·92 |
| 3 | 23 2 12 ·67 | 1 7 31 ·0 | 124 ·80 |
| 4 | 23 4 24 ·28 | 0 55 2 ·2 | 124 ·67 |
| 5 | 23 6 35 ·69 | 0 42 34 ·2 | 124 ·53 |
| 6 | 23 8 46 ·90 | 0 30 7 ·0 | 124 ·38 |
| 7 | 23 10 57 ·92 | 0 17 40 ·7 | 124 ·23 |
| 8 | 23 13 8 ·75 | S. 0 5 15 ·3 | 124 ·05 |
| 9 | 23 15 19 ·40 | N. 0 7 9 ·0 | 123 ·87 |
| 10 | 23 17 29 ·86 | 0 19 32 ·2 | 123 ·67 |
| 11 | 23 19 40 ·15 | 0 31 54 ·2 | 123 ·47 |
| 12 | 23 21 50 ·25 | 0 44 15 ·0 | 123 ·25 |
| 13 | 23 24 0 ·18 | 0 56 34 ·5 | 123 ·02 |
| 14 | 23 26 9 ·95 | 1 8 52 ·6 | 122 ·77 |
| 15 | 23 28 19 ·55 | 1 21 9 ·2 | 122 ·53 |
| 16 | 23 30 28 ·99 | 1 33 24 ·4 | 122 ·27 |
| 17 | 23 32 38 ·26 | 1 45 38 ·0 | 122 ·00 |
| 18 | 23 34 47 ·38 | 1 57 50 ·0 | 121 ·72 |
| 19 | 23 36 56 ·35 | 2 10 0 ·3 | 121 ·42 |
| 20 | 23 5 ·16 | 2 22 8 ·8 | 121 ·12 |
| 21 | 13 ·83 | 2 34 15 ·5 | 120 ·82 |
| 22 | 22 ·35 | 2 46 20 ·4 | 120 ·48 |
| 23 | 10 ·73 | 2 58 23 ·3 | 120 ·17 |
| | 8 ·97 | N. 3 10 24 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 23 47 38 ·97 | N. 3 10 24 ·3 | 119 ·82 |
| 1 | 23 49 47 ·08 | 3 22 23 ·2 | 119 ·47 |
| 2 | 23 51 55 ·05 | 3 34 20 ·0 | 119 ·12 |
| 3 | 23 54 2 ·90 | 3 46 14 ·7 | 118 ·73 |
| 4 | 23 56 10 ·62 | 3 58 7 ·1 | 118 ·37 |
| 5 | 23 58 18 ·22 | 4 9 57 ·3 | 117 ·98 |
| 6 | 0 0 25 ·70 | 4 21 45 ·2 | 117 ·57 |
| 7 | 0 2 33 ·06 | 4 33 30 ·6 | 117 ·18 |
| 8 | 0 4 40 ·31 | 4 45 13 ·7 | 116 ·77 |
| 9 | 0 6 47 ·45 | 4 56 54 ·3 | 116 ·35 |
| 10 | 0 8 54 ·48 | 5 8 32 ·4 | 115 ·90 |
| 11 | 0 11 1 ·40 | 5 20 7 ·8 | 115 ·48 |
| 12 | 0 13 8 ·23 | 5 31 40 ·7 | 115 ·03 |
| 13 | 0 15 14 ·96 | 5 43 10 ·9 | 114 ·57 |
| 14 | 0 17 21 ·58 | 5 54 38 ·3 | 114 ·10 |
| 15 | 0 19 28 ·12 | 6 6 2 ·9 | 113 ·65 |
| 16 | 0 21 34 ·57 | 6 17 24 ·8 | 113 ·15 |
| 17 | 0 23 40 ·93 | 6 28 43 ·7 | 112 ·68 |
| 18 | 0 25 47 ·20 | 6 39 59 ·8 | 112 ·17 |
| 19 | 0 27 53 ·40 | 6 51 12 ·8 | 111 ·68 |
| 20 | 0 29 59 ·51 | 7 2 22 ·9 | 111 ·17 |
| 21 | 0 32 5 ·55 | 7 13 29 ·9 | 110 ·65 |
| 22 | 0 34 11 ·52 | 7 24 33 ·8 | 110 ·12 |
| 23 | 0 36 17 ·41 | N. 7 35 34 ·5 | 109 ·60 |
| | *THURSDAY* 24. | | |
| 0 | 0 38 23 ·24 | N. 7 46 32 ·1 | 109 ·05 |
| 1 | 0 40 29 ·00 | 7 57 26 ·4 | 108 ·52 |
| 2 | 0 42 34 ·70 | 8 8 17 ·5 | 107 ·95 |
| 3 | 0 44 40 ·34 | 8 19 5 ·2 | 107 ·40 |
| 4 | 0 46 45 ·92 | 8 29 49 ·6 | 106 ·83 |
| 5 | 0 48 51 ·44 | 8 40 30 ·6 | 106 ·25 |
| 6 | 0 50 56 ·91 | 8 51 8 ·1 | 105 ·68 |
| 7 | 0 53 2 ·33 | 9 1 42 ·2 | 105 ·08 |
| 8 | 0 55 7 ·71 | 9 12 12 ·7 | 104 ·50 |
| 9 | 0 57 13 ·04 | 9 22 39 ·7 | 103 ·90 |
| 10 | 0 59 18 ·33 | 9 33 3 ·1 | 103 ·30 |
| 11 | 1 1 23 ·57 | 9 43 22 ·9 | 102 ·67 |
| 12 | 1 3 28 ·78 | 9 53 38 ·9 | 102 ·07 |
| 13 | 1 5 33 ·95 | 10 3 51 ·3 | 101 ·43 |
| 14 | 1 7 39 ·09 | 10 13 59 ·9 | 100 ·80 |
| 15 | 1 9 44 ·20 | 10 24 4 ·7 | 100 ·17 |
| 16 | 1 11 49 ·28 | 10 34 5 ·7 | 99 ·52 |
| 17 | 1 13 54 ·33 | 10 44 2 ·8 | 98 ·88 |
| 18 | 1 15 59 ·36 | 10 53 56 ·1 | 98 ·22 |
| 19 | 1 18 4 ·36 | 11 3 45 ·4 | 97 ·5[illegible] |
| 20 | 1 20 9 ·34 | 11 13 30 ·7 | [illegible] |
| 21 | 1 22 14 ·31 | 11 23 12 ·0 | [illegible] |
| 22 | 1 24 19 ·25 | 11 32 49 ·3 | [illegible] |
| 23 | 1 26 24 ·19 | 11 42 22 ·6 | [illegible] |
| 24 | 1 28 29 ·10 | N. 11 51 51 ·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 28 29·10 | N.11 51 51·7 | 94·17 |
| 1 | 1 30 34·01 | 12 1 16·7 | 93·47 |
| 2 | 1 32 38·91 | 12 10 37·5 | 92·77 |
| 3 | 1 34 43·81 | 12 19 54·1 | 92·07 |
| 4 | 1 36 48·70 | 12 29 6·5 | 91·37 |
| 5 | 1 38 53·58 | 12 38 14·7 | 90·63 |
| 6 | 1 40 58·47 | 12 47 18·5 | 89·92 |
| 7 | 1 43 3·35 | 12 56 18·0 | 89·20 |
| 8 | 1 45 8·23 | 13 5 13·2 | 88·47 |
| 9 | 1 47 13·12 | 13 14 4·0 | 87·73 |
| 10 | 1 49 18·01 | 13 22 50·4 | 86·98 |
| 11 | 1 51 22·91 | 13 31 32·3 | 86·25 |
| 12 | 1 53 27·81 | 13 40 9·8 | 85·50 |
| 13 | 1 55 32·72 | 13 48 42·8 | 84·75 |
| 14 | 1 57 37·65 | 13 57 11·3 | 83·98 |
| 15 | 1 59 42·58 | 14 5 35·2 | 83·22 |
| 16 | 2 1 47·53 | 14 13 54·5 | 82·47 |
| 17 | 2 3 52·50 | 14 22 9·3 | 81·68 |
| 18 | 2 5 57·48 | 14 30 19·4 | 80·90 |
| 19 | 2 8 2·47 | 14 38 24·8 | 80·13 |
| 20 | 2 10 7·49 | 14 46 25·6 | 79·33 |
| 21 | 2 12 12·52 | 14 54 21·6 | 78·55 |
| 22 | 2 14 17·58 | 15 2 12·9 | 77·75 |
| 23 | 2 16 22·65 | N.15 9 59·4 | 76·97 |
| | *SATURDAY* 26. | | |
| 0 | 2 18 27·74 | N.15 17 41·2 | 76·15 |
| 1 | 2 20 32·86 | 15 25 18·1 | 75·35 |
| 2 | 2 22 38·01 | 15 32 50·2 | 74·53 |
| 3 | 2 24 43·18 | 15 40 17·4 | 73·73 |
| 4 | 2 26 48·38 | 15 47 39·8 | 72·90 |
| 5 | 2 28 53·61 | 15 54 57·2 | 72·08 |
| 6 | 2 30 58·86 | 16 2 9·7 | 71·25 |
| 7 | 2 33 4·14 | 16 9 17·2 | 70·42 |
| 8 | 2 35 9·45 | 16 16 19·7 | 69·60 |
| 9 | 2 37 14·79 | 16 23 17·3 | 68·75 |
| 10 | 2 39 20·16 | 16 30 9·8 | 67·90 |
| 11 | 2 41 25·57 | 16 36 57·2 | 67·07 |
| 12 | 2 43 31·00 | 16 43 39·6 | 66·22 |
| 13 | 2 45 36·47 | 16 50 16·9 | 65·37 |
| 14 | 2 47 41·96 | 16 56 49·1 | 64·50 |
| 15 | 2 49 47·49 | 17 3 16·1 | 63·65 |
| 16 | 2 51 53·05 | 17 9 38·0 | 62·78 |
| 17 | 2 53 58·65 | 17 15 54·7 | 61·92 |
| 18 | 2 56 4·27 | 17 22 6·2 | 61·05 |
| 19 | 2 58 9·94 | 17 28 12·5 | 60·18 |
| 20 | 3 0 15·63 | 17 34 13·6 | 59·30 |
| 21 | 3 2 21·36 | 17 40 [illegible] | ·42 |
| 22 | 3 4 27·13 | 17 45 [illegible] | |
| 23 | 3 6 32·93 | 17 51 [illegible] | |
| 24 | 3 8 38·76 | N.17 57 [illegible] | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 27. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 8 38·76 | N.17 57 25·1 | 55·77 |
| 1 | 3 10 44·63 | 18 2 59·7 | 54·88 |
| 2 | 3 12 50·53 | 18 8 29·0 | 53·98 |
| 3 | 3 14 56·47 | 18 13 52·9 | 53·10 |
| 4 | 3 17 2·44 | 18 19 11·5 | 52·18 |
| 5 | 3 19 8·45 | 18 24 24·6 | 51·28 |
| 6 | 3 21 14·49 | 18 29 32·3 | 50·38 |
| 7 | 3 23 20·56 | 18 34 34·6 | 49·48 |
| 8 | 3 25 26·67 | 18 39 31·5 | 48·57 |
| 9 | 3 27 32·81 | 18 44 22·9 | 47·67 |
| 10 | 3 29 38·98 | 18 49 8·9 | 46·78 |
| 11 | 3 31 45·18 | 18 53 49·3 | 45·88 |
| 12 | 3 33 51·41 | 18 58 24·3 | 44·90 |
| 13 | 3 35 57·68 | 19 2 53·7 | 44·00 |
| 14 | 3 38 3·97 | 19 7 17·7 | 43·05 |
| 15 | 3 40 10·30 | 19 11 36·0 | 42·15 |
| 16 | 3 42 16·66 | 19 15 48·9 | 41·20 |
| 17 | 3 44 23·05 | 19 19 56·1 | 40·28 |
| 18 | 3 46 29·46 | 19 23 57·8 | 39·35 |
| 19 | 3 48 35·90 | 19 27 53·9 | 38·40 |
| 20 | 3 50 42·37 | 19 31 44·3 | 37·48 |
| 21 | 3 52 48·86 | 19 35 29·2 | 36·53 |
| 22 | 3 54 55·39 | 19 39 8·4 | 35·60 |
| 23 | 3 57 1·93 | N.19 42 42·0 | 34·67 |
| | *MONDAY* 28. | | |
| 0 | 3 59 8·50 | N.19 46 10·0 | 33·72 |
| 1 | 4 1 15·09 | 19 49 32·3 | 32·77 |
| 2 | 4 3 21·70 | 19 52 48·9 | 31·85 |
| 3 | 4 5 28·34 | 19 56 0·0 | 30·87 |
| 4 | 4 7 34·99 | 19 59 5·2 | 29·93 |
| 5 | 4 9 41·66 | 20 2 4·8 | 28·98 |
| 6 | 4 11 48·36 | 20 4 58·7 | 28·02 |
| 7 | 4 13 55·06 | 20 7 46·8 | 27·07 |
| 8 | 4 16 1·79 | 20 10 29·2 | 26·12 |
| 9 | 4 18 8·53 | 20 13 5·9 | 25·15 |
| 10 | 4 20 15·28 | 20 15 36·8 | 24·20 |
| 11 | 4 22 22·04 | 20 18 2·0 | 23·23 |
| 12 | 4 24 28·82 | 20 20 21·4 | 22·28 |
| 13 | 4 26 35·61 | 20 22 35·1 | 21·32 |
| 14 | 4 28 42·40 | 20 24 43·0 | 20·35 |
| 15 | 4 30 49·20 | 20 26 45·1 | 19·40 |
| 16 | 4 32 56·01 | 20 28 41·5 | 18·43 |
| 17 | 4 35 2·82 | 20 30 32·1 | 17·47 |
| 18 | 4 37 9·64 | 20 32 16·9 | 16·50 |
| 19 | 4 39 16·46 | 20 33 55·9 | 15·53 |
| 20 | 4 41 23·28 | 20 35 29·1 | 14·58 |
| 21 | 4 43 30·10 | 20 36 56·6 | 13·60 |
| 22 | 4 45 36·91 | 20 38 18·2 | 12·63 |
| 23 | 4 47 43·73 | 20 39 34·0 | 11·68 |
| | 4 49 50·54 | N.20 40 44·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *TUESDAY* 29. | | |
| m s | ° ′ ″ | ″ |
| 49 50 ·54 | N.20 40 44 ·1 | 10 ·72 |
| 51 57 ·34 | 20 41 48 ·4 | 9 ·73 |
| 54 4 ·14 | 20 42 46 ·8 | 8 ·78 |
| 56 10 ·92 | 20 43 39 ·5 | 7 ·80 |
| 58 17 ·70 | 20 44 26 ·3 | 6 ·85 |
| 0 24 ·46 | 20 45 7 ·4 | 5 ·88 |
| 2 31 ·21 | 20 45 42 ·7 | 4 ·90 |
| 4 37 ·95 | 20 46 12 ·1 | 3 ·95 |
| 6 44 ·66 | 20 46 35 ·8 | 2 ·98 |
| 8 51 ·36 | 20 46 53 ·7 | 2 ·02 |
| 10 58 ·05 | 20 47 5 ·8 | 1 ·05 |
| 13 4 ·70 | 20 47 12 ·1 | 0 ·08 |
| 15 11 ·34 | 20 47 12 ·6 | 0 ·88 |
| 17 17 ·95 | 20 47 7 ·3 | 1 ·83 |
| 19 24 ·53 | 20 46 56 ·3 | 2 ·80 |
| 21 31 ·09 | 20 46 39 ·5 | 3 ·77 |
| 23 37 ·61 | 20 46 16 ·9 | 4 ·73 |
| 25 44 ·11 | 20 45 48 ·5 | 5 ·68 |
| 27 50 ·57 | 20 45 14 ·4 | 6 ·63 |
| 29 57 ·00 | 20 44 34 ·6 | 7 ·62 |
| 32 3 ·39 | 20 43 48 ·9 | 8 ·55 |
| 34 9 ·74 | 20 42 57 ·6 | 9 ·52 |
| 36 16 ·06 | 20 42 0 ·5 | 10 ·47 |
| 38 22 ·34 | N.20 40 57 ·7 | 11 ·43 |
| *WEDNESDAY* 30. | | |
| 40 28 ·58 | N.20 39 49 ·1 | 12 ·38 |
| 42 34 ·77 | 20 38 34 ·8 | 13 ·33 |
| 44 40 ·92 | 20 37 14 ·8 | 14 ·27 |
| 46 47 ·02 | 20 35 49 ·2 | 15 ·23 |
| 48 53 ·07 | 20 34 17 ·8 | 16 ·17 |
| 50 59 ·07 | 20 32 40 ·8 | 17 ·12 |
| 53 5 ·02 | 20 30 58 ·1 | 18 ·07 |
| 55 10 ·92 | 20 29 9 ·7 | 19 ·00 |
| 57 16 ·77 | 20 27 15 ·7 | 19 ·93 |
| 59 22 ·56 | 20 25 16 ·1 | 20 ·88 |
| 1 28 ·29 | 20 23 10 ·8 | 21 ·80 |
| 3 33 ·96 | 20 21 0 ·0 | 22 ·75 |
| 5 39 ·57 | 20 18 43 ·5 | 23 ·67 |
| 7 45 ·12 | 20 16 21 ·5 | 24 ·60 |
| 9 50 ·61 | 20 13 53 ·9 | 25 ·53 |
| 11 56 ·04 | 20 11 20 ·7 | 26 ·45 |
| 14 1 ·40 | 20 8 42 ·0 | 27 ·37 |
| 16 6 ·69 | 20 5 57 ·8 | 28 ·28 |
| 18 11 ·91 | 20 3 8 ·1 | 29 ·20 |
| 20 17 ·07 | 20 0 12 ·9 | 30 ·12 |
| 22 22 ·15 | 19 57 12 ·2 | 31 ·03 |
| 24 27 ·16 | 19 54 6 ·0 | 31 ·93 |
| 26 32 ·10 | 19 50 54 ·4 | 32 ·83 |
| 28 36 ·96 | 19 47 37 ·4 | 33 ·73 |
| 30 41 ·74 | N.19 44 15 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 30 41 ·74 | N.19 44 15 ·0 | 34 ·63 |
| 1 | 6 32 46 ·45 | 19 40 47 ·2 | 35 ·53 |
| 2 | 6 34 51 ·08 | 19 37 14 ·0 | 36 ·42 |
| 3 | 6 36 55 ·63 | 19 33 35 ·5 | 37 ·32 |
| 4 | 6 39 0 ·10 | 19 29 51 ·6 | 38 ·20 |
| 5 | 6 41 4 ·49 | 19 26 2 ·4 | 39 ·07 |
| 6 | 6 43 8 ·79 | 19 22 8 ·0 | 39 ·97 |
| 7 | 6 45 13 ·01 | 19 18 8 ·2 | 40 ·83 |
| 8 | 6 47 17 ·15 | 19 14 3 ·2 | 41 ·72 |
| 9 | 6 49 21 ·20 | 19 9 52 ·9 | 42 ·58 |
| 10 | 6 51 25 ·16 | 19 5 37 ·4 | 43 ·43 |
| 11 | 6 53 29 ·04 | 19 1 16 ·8 | 44 ·32 |
| 12 | 6 55 32 ·82 | 18 56 50 ·9 | 45 ·17 |
| 13 | 6 57 36 ·52 | 18 52 19 ·9 | 46 ·03 |
| 14 | 6 59 40 ·12 | 18 47 43 ·7 | 46 ·88 |
| 15 | 7 1 43 ·63 | 18 43 2 ·4 | 47 ·72 |
| 16 | 7 3 47 ·06 | 18 38 16 ·1 | 48 ·57 |
| 17 | 7 5 50 ·38 | 18 33 24 ·7 | 49 ·42 |
| 18 | 7 7 53 ·62 | 18 28 28 ·2 | 50 ·25 |
| 19 | 7 9 56 ·76 | 18 23 26 ·7 | 51 ·07 |
| 20 | 7 11 59 ·80 | 18 18 20 ·3 | 51 ·90 |
| 21 | 7 14 2 ·75 | 18 13 8 ·9 | 52 ·73 |
| 22 | 7 16 5 ·61 | 18 7 52 ·5 | 53 ·53 |
| 23 | 7 18 8 ·37 | N.18 2 31 ·3 | 54 ·37 |
| | *FRIDAY, AUG.* 1. | | |
| 0 | 7 20 11 ·03 | N.17 57 5 ·1 | |

### PHASES OF THE MOON.

| | d | h | m |
|---|---|---|---|
| ● New Moon - - | 4 | 4 | 29 ·8 |
| ☽ *First Quarter* - | 12 | 2 | 22 ·4 |
| ○ Full Moon - - | 18 | 18 | 2 ·6 |
| ☾ *Last Quarter* - | 25 | 15 | 20 ·1 |

| | d | h |
|---|---|---|
| ☾ Apogee - - - - - - - | 3 | 15 |
| ☾ Perigee - - - - - - - | 18 | 3 |
| ☾ Apogee - - - - - - - | 30 | 21 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Saturn | W. | 106 37 36 | 3046 | 108 6 52 | 3051 | 109 36 2 | 3054 | 111 5 8 | |
| | Mars | W. | 96 12 25 | 3183 | 97 38 54 | 3187 | 99 5 19 | 3192 | 100 31 38 | |
| | Fomalhaut | W. | 92 32 56 | 3510 | 93 53 9 | 3516 | 95 13 15 | 3522 | 96 33 15 | |
| | α Pegasi | W. | 74 41 40 | 3193 | 76 7 58 | 3194 | 77 34 14 | 3196 | 79 0 27 | |
| | α Arietis | W. | 31 4 18 | 3202 | 32 30 25 | 3193 | 33 56 43 | 3186 | 35 23 9 | |
| | Jupiter | W. | 29 18 22 | 3119 | 30 46 8 | 3120 | 32 13 53 | 3123 | 33 41 34 | |
| | Sun | E. | 34 40 24 | 3428 | 33 18 39 | 3435 | 31 57 2 | 3442 | 30 35 33 | |
| 7 | Sun | W. | 31 14 34 | 3396 | 32 36 55 | 3388 | 33 59 25 | 3379 | 35 22 5 | |
| | Spica ♍ | E. | 65 35 21 | 3003 | 64 5 12 | 2997 | 62 34 55 | 2992 | 61 4 32 | |
| | Antares | E. | 111 0 17 | 3027 | 109 30 38 | 3021 | 108 0 51 | 3014 | 106 30 56 | |
| 8 | Sun | W. | 42 17 47 | 3329 | 43 41 25 | 3319 | 45 5 14 | 3311 | 46 29 13 | |
| | Spica ♍ | E. | 53 30 39 | 2953 | 51 59 27 | 2946 | 50 28 6 | 2938 | 48 56 35 | |
| | Antares | E. | 98 59 23 | 2974 | 97 28 38 | 2966 | 95 57 43 | 2959 | 94 26 39 | |
| 9 | Sun | W. | 53 31 59 | 3250 | 54 57 9 | 3240 | 56 22 31 | 3229 | 57 48 6 | |
| | Regulus | W. | 13 49 8 | 3236 | 15 14 35 | 3163 | 16 41 28 | 3106 | 18 9 30 | |
| | Spica ♍ | E. | 41 16 22 | 2887 | 39 43 46 | 2877 | 38 10 57 | 2866 | 36 37 55 | |
| | Antares | E. | 86 48 40 | 2908 | 85 16 31 | 2898 | 83 44 9 | 2888 | 82 11 35 | |
| 10 | Sun | W. | 64 59 33 | 3156 | 66 26 35 | 3143 | 67 53 52 | 3129 | 69 21 26 | |
| | Regulus | W. | 25 41 34 | 2905 | 27 13 46 | 2884 | 28 46 26 | 2862 | 30 19 34 | |
| | Spica ♍ | E. | 28 49 25 | 2802 | 27 15 0 | 2790 | 25 40 19 | 2778 | 24 5 22 | |
| | Antares | E. | 74 25 24 | 2825 | 72 51 28 | 2812 | 71 17 16 | 2801 | 69 42 50 | |
| 11 | Sun | W. | 76 43 32 | 3043 | 78 12 51 | 3028 | 79 42 29 | 3012 | 81 12 27 | |
| | Regulus | W. | 38 11 28 | 2749 | 39 47 3 | 2732 | 41 23 0 | 2714 | 42 59 21 | |
| | Antares | E. | 61 46 34 | 2726 | 60 10 29 | 2713 | 58 34 6 | 2699 | 56 57 25 | |
| | α Aquilæ | E. | 112 41 36 | 3188 | 111 15 12 | 3162 | 109 48 17 | 3138 | 108 20 54 | |
| 12 | Sun | W. | 88 47 16 | 2915 | 90 19 16 | 2897 | 91 51 39 | 2880 | 93 24 23 | |
| | Regulus | W. | 51 6 51 | 2610 | 52 45 32 | 2594 | 54 24 35 | 2576 | 56 4 3 | |
| | Antares | E. | 48 49 27 | 2617 | 47 10 55 | 2604 | 45 32 5 | 2591 | 43 52 57 | |
| | α Aquilæ | E. | 100 57 5 | 3007 | 99 27 1 | 2986 | 97 56 31 | 2968 | 96 25 38 | |
| | Saturn | E. | 118 41 30 | 2590 | 117 2 21 | 2572 | 115 22 48 | 2556 | 113 42 52 | |
| 13 | Sun | W. | 101 13 44 | 2774 | 102 48 46 | 2757 | 104 24 10 | 2738 | 105 59 59 | |
| | Regulus | W. | 64 27 23 | 2471 | 66 9 17 | 2454 | 67 51 34 | 2436 | 69 34 17 | |
| | Antares | E. | 35 32 44 | 2515 | 33 51 51 | 2504 | 32 10 43 | 2495 | 30 29 23 | |
| | α Aquilæ | E. | 88 45 22 | 2862 | 87 12 14 | 2845 | 85 38 45 | 2831 | 84 4 58 | |
| | Saturn | E. | 105 17 18 | 2453 | 103 34 59 | 2436 | 101 52 16 | 2419 | 100 9 8 | |
| | Mars | E. | 117 46 41 | 2563 | 116 6 55 | 2544 | 114 26 42 | 2524 | 112 46 2 | |
| 14 | Sun | W. | 114 4 57 | 2632 | 115 43 8 | 2615 | 117 21 42 | 2599 | 119 0 39 | |
| | Regulus | W. | 78 14 1 | 2333 | 79 59 12 | 2317 | 81 44 47 | 2300 | 83 30 47 | |
| | Spica ♍ | W. | 24 14 48 | 2313 | 26 0 28 | 2297 | 27 46 32 | 2281 | 29 33 0 | |
| | Antares | E. | 22 0 51 | 2486 | 20 19 18 | 2500 | 18 38 5 | 2525 | 16 57 27 | |
| | α Aquilæ | E. | 76 11 41 | 2758 | 74 36 18 | 2749 | 73 0 43 | 2741 | 71 24 58 | |
| | Saturn | E. | 91 27 23 | 2318 | 89 41 49 | 2301 | 87 55 51 | 2285 | 86 9 29 | |
| | Mars | E. | 104 15 58 | 2411 | 102 32 39 | 2393 | 100 48 54 | 2375 | 99 4 43 | |
| 15 | Sun | W. | 127 21 5 | 2502 | 129 2 15 | 2487 | 130 43 46 | 2474 | 132 25 36 | |
| | Regulus | W. | 92 26 39 | 2205 | 94 14 59 | 2191 | 96 3 40 | 2177 | 97 52 43 | |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Saturn | W. | 112 34 8 | 3062 | 114 3 4 | 3066 | 115 31 55 | 3069 | 117 0 42 | 3073 |
| | Mars | W. | 101 57 53 | 3199 | 103 24 4 | 3202 | 104 50 11 | 3206 | 106 16 13 | 3209 |
| | Fomalhaut | W. | 97 53 8 | 3535 | 99 12 53 | 3542 | 100 32 31 | 3550 | 101 52 0 | 3557 |
| | α Pegasi | W. | 80 26 38 | 3200 | 81 52 47 | 3203 | 83 18 53 | 3205 | 84 44 56 | 3206 |
| | α Arietis | W. | 36 49 44 | 3173 | 38 16 25 | 3169 | 39 43 11 | 3164 | 41 10 3 | 3162 |
| | Jupiter | W. | 35 9 13 | 3127 | 36 36 50 | 3129 | 38 4 24 | 3130 | 39 31 57 | 3133 |
| | Sun | E. | 29 14 11 | 3455 | 27 52 57 | 3463 | 26 31 52 | 3470 | 25 10 54 | 3480 |
| 7 | Sun | W. | 36 44 53 | 3363 | 38 7 52 | 3355 | 39 31 0 | 3346 | 40 54 18 | 3337 |
| | Spica ♍ | E. | 59 34 2 | 2979 | 58 3 23 | 2973 | 56 32 37 | 2966 | 55 1 42 | 2960 |
| | Antares | E. | 105 0 54 | 3002 | 103 30 44 | 2996 | 102 0 26 | 2989 | 100 29 59 | 2981 |
| 8 | Sun | W. | 47 53 23 | 3291 | 49 17 45 | 3282 | 50 42 17 | 3271 | 52 7 2 | 3261 |
| | Spica ♍ | E. | 47 24 53 | 2922 | 45 53 2 | 2913 | 44 21 0 | 2905 | 42 48 47 | 2895 |
| | Antares | E. | 92 55 25 | 2943 | 91 24 0 | 2935 | 89 52 25 | 2925 | 88 20 38 | 2916 |
| 9 | Sun | W. | 59 13 55 | 3205 | 60 39 58 | 3194 | 62 6 14 | 3181 | 63 32 46 | 3168 |
| | Regulus | W. | 19 38 29 | 3020 | 21 8 17 | 2986 | 22 38 47 | 2957 | 24 9 54 | 2931 |
| | Spica ♍ | E. | 35 4 41 | 2846 | 33 31 13 | 2835 | 31 57 31 | 2825 | 30 23 36 | 2813 |
| | Antares | E. | 80 38 48 | 2867 | 79 5 47 | 2858 | 77 32 34 | 2846 | 75 59 6 | 2835 |
| 10 | Sun | W. | 70 49 16 | 3101 | 72 17 24 | 3087 | 73 45 49 | 3074 | 75 14 31 | 3058 |
| | Regulus | W. | 31 53 8 | 2823 | 33 27 6 | 2803 | 35 1 30 | 2785 | 36 36 17 | 2767 |
| | Spica ♍ | E. | 22 30 9 | 2753 | 20 54 40 | 2741 | 19 18 55 | 2728 | 17 42 53 | 2714 |
| | Antares | E. | 68 8 7 | 2777 | 66 33 9 | 2764 | 64 57 54 | 2752 | 63 22 23 | 2738 |
| 11 | Sun | W. | 82 42 44 | 2981 | 84 13 21 | 2965 | 85 44 18 | 2948 | 87 15 36 | 2931 |
| | Regulus | W. | 44 36 4 | 2680 | 46 13 11 | 2663 | 47 50 41 | 2645 | 49 28 35 | 2628 |
| | Antares | E. | 55 20 26 | 2672 | 53 43 9 | 2658 | 52 5 33 | 2645 | 50 27 39 | 2632 |
| | α Aquilæ | E. | 106 53 2 | 3092 | 105 24 43 | 3070 | 103 55 57 | 3048 | 102 26 44 | 3027 |
| 12 | Sun | W. | 94 57 30 | 2845 | 96 30 59 | 2828 | 98 4 51 | 2810 | 99 39 6 | 2792 |
| | Regulus | W. | 57 43 55 | 2542 | 59 24 10 | 2524 | 61 4 50 | 2506 | 62 45 55 | 2489 |
| | Antares | E. | 42 13 29 | 2563 | 40 33 44 | 2551 | 38 53 41 | 2538 | 37 13 21 | 2526 |
| | α Aquilæ | E. | 94 54 20 | 2930 | 93 22 39 | 2912 | 91 50 35 | 2894 | 90 18 9 | 2878 |
| | Saturn | E. | 112 2 33 | 2522 | 110 21 50 | 2505 | 108 40 43 | 2488 | 106 59 13 | 2470 |
| 13 | Sun | W. | 107 36 11 | 2703 | 109 12 47 | 2685 | 110 49 47 | 2668 | 112 27 10 | 2650 |
| | Regulus | W. | 71 17 24 | 2402 | 73 0 56 | 2385 | 74 44 53 | 2367 | 76 29 15 | 2351 |
| | Antares | E. | 28 47 51 | 2481 | 27 6 11 | 2476 | 25 24 24 | 2475 | 23 42 36 | 2477 |
| | α Aquilæ | E. | 82 30 51 | 2803 | 80 56 28 | 2790 | 79 21 47 | 2779 | 77 46 51 | 2768 |
| | Saturn | E. | 98 25 36 | 2385 | 96 41 40 | 2368 | 94 57 19 | 2351 | 93 12 33 | 2334 |
| | Mars | E. | 111 4 55 | 2485 | 109 23 20 | 2466 | 107 41 19 | 2448 | 105 58 52 | 2429 |
| 14 | Sun | W. | 120 40 0 | 2565 | 122 19 43 | 2549 | 123 59 48 | 2533 | 125 40 16 | 2517 |
| | Regulus | W. | 85 17 10 | 2267 | 87 3 58 | 2252 | 88 51 9 | 2236 | 90 38 43 | 2221 |
| | Spica ♍ | W. | 31 19 52 | 2248 | 33 7 8 | 2232 | 34 54 48 | 2217 | 36 42 51 | 2201 |
| | Antares | E. | 15 17 45 | 2627 | 13 39 26 | 2723 | 12 3 17 | 2877 | 10 30 28 | 3133 |
| | α Aquilæ | E. | 69 49 4 | 2730 | 68 13 4 | 2726 | 66 36 58 | 2725 | 65 0 51 | 2724 |
| | Saturn | E. | 84 22 44 | 2253 | 82 35 35 | 2237 | 80 48 3 | 2221 | 79 0 7 | 2207 |
| | Mars | E. | 97 20 8 | 2340 | 95 35 7 | 2324 | 93 49 43 | 2308 | 92 3 55 | 2292 |
| 15 | Sun | W. | 134 7 46 | 2447 | 135 50 14 | 2434 | 137 33 0 | 2423 | 139 16 2 | 2412 |
| | Regulus | W. | 99 42 6 | 2149 | *101 31 50* | 2137 | 103 21 53 | 2124 | 105 12 16 | 2113 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 15 | Spica ♍ | W. | 38 31 17 | 2186 | 40 20 6 | 2171 | 42 9 17 | 2157 | 43 58 |
| | Saturn | E. | 77 11 50 | 2192 | 75 23 10 | 2179 | 73 34 10 | 2164 | 71 44 |
| | Mars | E. | 90 17 44 | 2277 | 88 31 10 | 2262 | 86 44 14 | 2247 | 84 56 |
| | Fomalhaut | E. | 91 39 19 | 2655 | 90 1 38 | 2641 | 88 23 38 | 2627 | 86 45 |
| 16 | Spica ♍ | W. | 53 11 43 | 2079 | 55 3 14 | 2068 | 56 55 3 | 2057 | 58 47 |
| | Antares | W. | 9 33 40 | 2893 | 11 6 8 | 2651 | 12 43 54 | 2492 | 14 25 |
| | Saturn | E. | 62 33 10 | 2091 | 60 41 57 | 2082 | 58 50 30 | 2072 | 56 58 |
| | Mars | E. | 75 55 38 | 2173 | 74 6 30 | 2163 | 72 17 6 | 2154 | 70 27 |
| | Fomalhaut | E. | 78 30 9 | 2573 | 76 50 37 | 2569 | 75 11 0 | 2567 | 73 31 |
| | α Pegasi | E. | 95 36 3 | 2228 | 93 48 17 | 2215 | 92 0 12 | 2205 | 90 11 |
| 17 | Spica ♍ | W. | 68 11 13 | 2005 | 70 4 39 | 2000 | 71 58 14 | 1994 | 73 51 |
| | Antares | W. | 23 20 0 | 2138 | 25 10 1 | 2115 | 27 0 38 | 2095 | 28 51 |
| | Saturn | E. | 47 37 24 | 2033 | 45 44 41 | 2030 | 43 51 54 | 2028 | 41 59 |
| | Mars | E. | 61 16 41 | 2118 | 59 26 9 | 2116 | 57 35 34 | 2115 | 55 44 |
| | Fomalhaut | E. | 65 13 52 | 2598 | 63 34 54 | 2612 | 61 56 15 | 2628 | 60 17 |
| | α Pegasi | E. | 81 6 49 | 2158 | 79 17 18 | 2154 | 77 27 41 | 2151 | 75 37 |
| 18 | Spica ♍ | W. | 83 22 7 | 1976 | 85 16 19 | 1976 | 87 10 31 | 1977 | 89 4 |
| | Antares | W. | 38 12 20 | 2032 | 40 5 5 | 2027 | 41 57 57 | 2024 | 43 50 |
| | Saturn | E. | 32 35 24 | 2048 | 30 43 5 | 2059 | 28 51 2 | 2072 | 26 59 |
| | Mars | E. | 46 32 41 | 2140 | 44 42 42 | 2149 | 42 52 58 | 2162 | 41 3 |
| | Fomalhaut | E. | 52 14 47 | 2805 | 50 40 26 | 2851 | 49 7 4 | 2904 | 47 34 |
| | α Pegasi | E. | 66 29 19 | 2157 | 64 39 46 | 2162 | 62 50 21 | 2169 | 61 1 |
| | Jupiter | E. | 113 4 10 | 2018 | 111 11 3 | 2018 | 109 17 56 | 2018 | 107 24 |
| 19 | Spica ♍ | W. | 98 34 41 | 1996 | 100 28 21 | 2003 | 102 21 51 | 2009 | 104 15 |
| | Antares | W. | 53 15 46 | 2029 | 55 8 35 | 2034 | 57 1 16 | 2039 | 58 53 |
| | Mars | E. | 32 4 5 | 2313 | 30 18 24 | 2356 | 28 33 46 | 2408 | 26 50 |
| | α Pegasi | E. | 51 59 2 | 2247 | 50 11 45 | 2268 | 48 24 58 | 2291 | 46 38 |
| | α Arietis | E. | 94 28 3 | 2043 | 92 35 35 | 2049 | 90 43 17 | 2055 | 88 51 |
| | Jupiter | E. | 98 0 6 | 2037 | 96 7 29 | 2042 | 94 15 0 | 2049 | 92 22 |
| 20 | Antares | W. | 68 13 43 | 2088 | 70 5 0 | 2100 | 71 55 59 | 2111 | 73 46 |
| | α Pegasi | E. | 37 58 33 | 2499 | 36 17 19 | 2552 | 34 37 18 | 2611 | 32 58 |
| | α Arietis | E. | 79 33 43 | 2113 | 77 43 3 | 2124 | 75 52 40 | 2138 | 74 2 |
| | Jupiter | E. | 83 4 24 | 2104 | 81 13 31 | 2115 | 79 22 55 | 2127 | 77 32 |
| | Aldebaran | E. | 112 42 0 | 2077 | 110 50 26 | 2088 | 108 59 9 | 2100 | 107 8 |
| 21 | Antares | W. | 82 55 13 | 2193 | 84 43 51 | 2209 | 86 32 5 | 2225 | 88 19 |
| | α Arietis | E. | 64 57 54 | 2229 | 63 10 9 | 2247 | 61 22 51 | 2264 | 59 35 |
| | Jupiter | E. | 68 26 16 | 2212 | 66 38 6 | 2228 | 64 50 20 | 2244 | 63 2 |
| | Aldebaran | E. | 97 58 16 | 2183 | 96 9 23 | 2199 | 94 20 54 | 2215 | 92 32 |
| 22 | α Aquilæ | W. | 49 0 23 | 3076 | 50 29 2 | 3056 | 51 58 5 | 3040 | 53 27 |
| | Saturn | W. | 28 13 26 | 2391 | 29 57 14 | 2398 | 31 40 51 | 2408 | 33 24 |
| | α Arietis | E. | 50 48 51 | 2387 | 49 4 57 | 2409 | 47 21 35 | 2432 | 45 38 |
| | Jupiter | E. | 54 12 25 | 2348 | 52 27 36 | 2367 | 50 43 14 | 2386 | 48 59 |
| | Aldebaran | E. | 83 38 33 | 2318 | 81 53 0 | 2336 | 80 7 53 | 2355 | 78 23 |
| | Sun | E. | 134 45 58 | 2638 | 133 7 54 | 2656 | 131 30 15 | 2675 | 129 53 |
| 23 | α Aquilæ | W. | 60 57 5 | 3006 | 62 27 11 | 3008 | 63 57 14 | 3011 | 65 27 |
| | Saturn | W. | 41 56 58 | 2486 | 43 38 31 | 2501 | 45 19 43 | 2517 | 47 0 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 15 | Spica ♍ | W. | 45 48 44 | 2129 | 47 38 59 | 2116 | 49 29 34 | 2103 | 51 20 29 | 2090 |
| | Saturn | E. | 69 55 6 | 2138 | 68 5 4 | 2126 | 66 14 44 | 2113 | 64 24 5 | 2103 |
| | Mars | E. | 83 9 19 | 2220 | 81 21 21 | 2207 | 79 33 4 | 2195 | 77 44 29 | 2184 |
| | Fomalhaut | E. | 85 6 44 | 2603 | 83 27 53 | 2593 | 81 48 49 | 2585 | 80 9 33 | 2579 |
| 16 | Spica ♍ | W. | 60 39 30 | 2037 | 62 32 6 | 2028 | 64 24 56 | 2020 | 66 17 59 | 2013 |
| | Antares | W. | 16 9 14 | 2307 | 17 55 4 | 2248 | 19 42 20 | 2202 | 21 30 44 | 2167 |
| | Saturn | E. | 55 6 52 | 2056 | 53 14 45 | 2049 | 51 22 27 | 2043 | 49 29 59 | 2038 |
| | Mars | E. | 68 37 40 | 2138 | 66 47 39 | 2131 | 64 57 27 | 2126 | 63 7 8 | 2121 |
| | Fomalhaut | E. | 71 51 40 | 2569 | 70 12 2 | 2573 | 68 32 30 | 2578 | 66 53 5 | 2587 |
| | α Pegasi | E. | 88 23 16 | 2186 | 86 34 27 | 2177 | 84 45 25 | 2170 | 82 56 12 | 2163 |
| 17 | Spica ♍ | W. | 75 45 49 | 1985 | 77 39 47 | 1982 | 79 33 50 | 1979 | 81 27 57 | 1977 |
| | Antares | W. | 30 43 17 | 2065 | 32 35 10 | 2054 | 34 27 20 | 2045 | 36 19 44 | 2037 |
| | Saturn | E. | 40 6 13 | 2028 | 38 13 23 | 2031 | 36 20 37 | 2034 | 34 27 56 | 2040 |
| | Mars | E. | 53 54 20 | 2117 | 52 3 46 | 2119 | 50 13 16 | 2124 | 48 22 54 | 2130 |
| | Fomalhaut | E. | 58 40 7 | 2671 | 57 2 48 | 2697 | 55 26 4 | 2729 | 53 50 2 | 2764 |
| | α Pegasi | E. | 73 48 14 | 2148 | 71 58 28 | 2148 | 70 8 42 | 2149 | 68 18 58 | 2153 |
| 18 | Spica ♍ | W. | 90 58 51 | 1980 | 92 52 56 | 1983 | 94 46 57 | 1986 | 96 40 53 | 1991 |
| | Antares | W. | 45 43 54 | 2021 | 47 36 55 | 2022 | 49 29 55 | 2023 | 51 22 53 | 2026 |
| | Saturn | E. | 25 8 5 | 2112 | 23 17 24 | 2140 | 21 27 26 | 2176 | 19 38 22 | 2224 |
| | Mars | E. | 39 14 33 | 2196 | 37 26 0 | 2219 | 35 38 1 | 2245 | 33 50 40 | 2276 |
| | Fomalhaut | E. | 46 3 52 | 3031 | 44 34 18 | 3109 | 43 6 19 | 3195 | 41 40 4 | 3294 |
| | α Pegasi | E. | 59 12 6 | 2188 | 57 23 20 | 2200 | 55 34 53 | 2214 | 53 46 46 | 2229 |
| | Jupiter | E. | 105 31 44 | 2021 | 103 38 42 | 2023 | 101 45 44 | 2027 | 99 52 52 | 2031 |
| 19 | Spica ♍ | W. | 106 8 21 | 2025 | 108 1 17 | 2033 | 109 54 0 | 2043 | 111 46 27 | 2053 |
| | Antares | W. | 60 46 12 | 2052 | 62 38 25 | 2061 | 64 30 25 | 2070 | 66 22 11 | 2079 |
| | Mars | E. | 25 8 30 | 2548 | 23 28 23 | 2643 | 21 50 27 | 2761 | 20 15 8 | 2913 |
| | α Pegasi | E. | 44 53 9 | 2345 | 43 8 15 | 2377 | 41 24 7 | 2413 | 39 40 51 | 2454 |
| | α Arietis | E. | 86 59 11 | 2071 | 85 7 27 | 2079 | 83 15 56 | 2090 | 81 24 42 | 2100 |
| | Jupiter | E. | 90 30 35 | 2064 | 88 38 41 | 2073 | 86 47 0 | 2083 | 84 55 34 | 2093 |
| 20 | Antares | W. | 75 37 4 | 2136 | 77 27 8 | 2150 | 79 16 51 | 2164 | 81 6 13 | 2179 |
| | α Pegasi | E. | 31 21 30 | 2757 | 29 46 5 | 2849 | 28 12 40 | 2954 | 26 41 29 | 3080 |
| | α Arietis | E. | 72 12 56 | 2165 | 70 23 35 | 2180 | 68 34 38 | 2195 | 66 46 3 | 2212 |
| | Jupiter | E. | 75 42 39 | 2153 | 73 53 1 | 2167 | 72 3 44 | 2182 | 70 14 49 | 2196 |
| | Aldebaran | E. | 105 17 30 | 2126 | 103 27 10 | 2140 | 101 37 11 | 2153 | 99 47 32 | 2168 |
| 21 | Antares | W. | 90 7 21 | 2258 | 91 54 22 | 2275 | 93 40 58 | 2293 | 95 27 8 | 2311 |
| | α Arietis | E. | 57 49 35 | 2302 | 56 3 39 | 2323 | 54 18 13 | 2344 | 52 33 17 | 2364 |
| | Jupiter | E. | 61 16 0 | 2278 | 59 29 28 | 2295 | 57 43 21 | 2313 | 55 57 40 | 2331 |
| | Aldebaran | E. | 90 45 6 | 2248 | 88 57 50 | 2264 | 87 10 58 | 2282 | 85 24 33 | 2300 |
| 22 | α Aquilæ | W. | 54 57 7 | 3018 | 56 26 57 | 3011 | 57 56 56 | 3008 | 59 26 59 | 3006 |
| | Saturn | W. | 35 7 24 | 2430 | 36 50 16 | 2443 | 38 32 50 | 2457 | 40 15 4 | 2471 |
| | α Arietis | E. | 43 56 31 | 2481 | 42 14 51 | 2507 | 40 33 47 | 2533 | 38 53 20 | 2561 |
| | Jupiter | E. | 47 15 51 | 2424 | 45 32 50 | 2443 | 43 50 16 | 2463 | 42 8 10 | 2482 |
| | Aldebaran | E. | 76 39 0 | 2391 | 74 55 13 | 2411 | 73 11 54 | 2429 | 71 29 1 | 2449 |
| | Sun | E. | 128 16 11 | 2712 | 126 39 47 | 2732 | 125 3 49 | 2751 | 123 28 17 | 2770 |
| 23 | α Aquilæ | W. | 66 57 6 | 3022 | 68 26 51 | 3029 | 69 56 28 | 3038 | 71 25 54 | 3047 |
| | Saturn | W. | 48 40 59 | 2550 | 50 21 3 | 2566 | 52 0 45 | 2582 | 53 40 5 | 2599 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 23 | Mars | W. | 29 49 40 | 2768 | 31 24 50 | 2755 | 33 0 17 | 2748 | 34 35 5 |
| | α Arietis | E. | 37 13 31 | 2590 | 35 34 22 | 2621 | 33 55 55 | 2653 | 32 18 1 |
| | Jupiter | E. | 40 26 31 | 2502 | 38 45 20 | 2520 | 37 4 35 | 2540 | 35 24 1 |
| | Aldebaran | E. | 69 46 36 | 2467 | 68 4 37 | 2487 | 66 23 5 | 2506 | 64 42 |
| | Sun | E. | 121 53 10 | 2789 | 120 18 28 | 2810 | 118 44 13 | 2829 | 117 10 2 |
| 24 | α Aquilæ | W. | 72 55 9 | 3056 | 74 24 12 | 3067 | 75 53 2 | 3079 | 77 21 3 |
| | Saturn | W. | 55 19 1 | 2615 | 56 57 35 | 2632 | 58 35 47 | 2648 | 60 13 3 |
| | Fomalhaut | W. | 46 19 49 | 3581 | 47 38 44 | 3550 | 48 58 13 | 3521 | 50 18 1 |
| | Mars | W. | 42 34 11 | 2758 | 44 9 34 | 2765 | 45 44 48 | 2773 | 47 19 5 |
| | Jupiter | E. | 27 9 43 | 2661 | 25 32 10 | 2681 | 23 55 5 | 2702 | 22 18 2 |
| | Aldebaran | E. | 56 23 11 | 2620 | 54 44 43 | 2638 | 53 6 40 | 2657 | 51 29 |
| | Sun | E. | 109 27 32 | 2946 | 107 56 12 | 2966 | 106 25 16 | 2984 | 104 54 4 |
| 25 | α Aquilæ | W. | 84 40 47 | 3157 | 86 7 48 | 3171 | 87 34 32 | 3186 | 89 0 5 |
| | Saturn | W. | 68 17 20 | 2744 | 69 53 2 | 2759 | 71 28 23 | 2773 | 73 3 2 |
| | Fomalhaut | W. | 57 3 35 | 3426 | 58 25 22 | 3420 | 59 47 16 | 3414 | 61 9 1 |
| | Mars | W. | 55 11 57 | 2834 | 56 45 41 | 2845 | 58 19 11 | 2856 | 59 52 2 |
| | Aldebaran | E. | 43 26 57 | 2765 | 41 51 43 | 2782 | 40 16 52 | 2799 | 38 42 2 |
| | Sun | E. | 97 27 46 | 3093 | 95 59 28 | 3110 | 94 31 31 | 3127 | 93 3 5 |
| 26 | Saturn | W. | 80 53 57 | 2857 | 82 27 11 | 2870 | 84 0 8 | 2883 | 85 32 4 |
| | Fomalhaut | W. | 68 0 3 | 3407 | 69 22 12 | 3408 | 70 44 20 | 3411 | 72 6 2 |
| | Mars | W. | 67 35 8 | 2922 | 69 6 58 | 2932 | 70 38 36 | 2943 | 72 10 |
| | α Pegasi | W. | 48 33 34 | 3123 | 50 1 16 | 3125 | 51 28 55 | 3126 | 52 56 3 |
| | Aldebaran | E. | 30 55 37 | 2903 | 29 23 22 | 2920 | 27 51 29 | 2939 | 26 20 |
| | Sun | E. | 85 50 41 | 3220 | 84 24 56 | 3236 | 82 59 29 | 3248 | 81 34 1 |
| 27 | Saturn | W. | 93 12 35 | 2950 | 94 43 51 | 2959 | 96 14 55 | 2969 | 97 45 4 |
| | Mars | W. | 79 43 54 | 3000 | 81 14 7 | 3010 | 82 44 8 | 3018 | 84 13 5 |
| | Fomalhaut | W. | 78 55 41 | 3436 | 80 17 17 | 3441 | 81 38 47 | 3447 | 83 0 1 |
| | α Pegasi | W. | 60 13 44 | 3148 | 61 40 56 | 3152 | 63 8 3 | 3156 | 64 35 |
| | Sun | E. | 74 32 8 | 3324 | 73 8 24 | 3334 | 71 44 52 | 3345 | 70 21 3 |
| 28 | Saturn | W. | 105 17 26 | 3018 | 106 47 16 | 3024 | 108 16 59 | 3031 | 109 46 3 |
| | Mars | W. | 91 40 51 | 3061 | 93 9 48 | 3068 | 94 38 37 | 3074 | 96 7 1 |
| | Fomalhaut | W. | 89 45 24 | 3486 | 91 6 4 | 3492 | 92 26 37 | 3499 | 93 47 |
| | α Pegasi | W. | 71 48 56 | 3183 | 73 15 26 | 3186 | 74 41 52 | 3189 | 76 8 1 |
| | α Arietis | W. | 28 13 5 | 3226 | 29 38 44 | 3213 | 31 4 38 | 3204 | 32 30 4 |
| | Jupiter | W. | 22 38 47 | 3080 | 24 7 21 | 3084 | 25 35 50 | 3087 | 27 4 1 |
| | Sun | E. | 63 27 41 | 3400 | 62 5 24 | 3408 | 60 43 16 | 3415 | 59 21 1 |
| 29 | Mars | W. | 103 29 4 | 3105 | 104 57 7 | 3110 | 106 25 5 | 3114 | 107 52 5 |
| | α Pegasi | W. | 83 18 58 | 3210 | 84 44 55 | 3213 | 86 10 49 | 3215 | 87 36 4 |
| | α Arietis | W. | 39 42 58 | 3172 | 41 9 41 | 3169 | 42 36 27 | 3166 | 44 3 1 |
| | Jupiter | W. | 34 25 15 | 3107 | 35 53 16 | 3110 | 37 21 13 | 3112 | 38 49 |
| | Sun | E. | 52 33 6 | 3451 | 51 11 47 | 3455 | 49 50 33 | 3460 | 48 29 2 |
| 30 | α Pegasi | W. | 94 45 15 | 3228 | 96 10 51 | 3230 | 97 36 25 | 3231 | 99 1 5 |
| | α Arietis | W. | 51 18 5 | 3153 | 52 45 11 | 3151 | 54 12 19 | 3149 | 55 39 2 |
| | Jupiter | W. | 46 8 13 | 3119 | 47 35 59 | 3120 | 49 3 44 | 3120 | 50 31 2 |
| | Aldebaran | W. | 17 57 46 | 3193 | 19 24 4 | 3178 | 20 50 40 | 3165 | 22 17 3 |
| | Sun | E. | 41 44 46 | 3482 | 40 24 2 | 3485 | 39 3 21 | 3489 | 37 42 4 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 23 | Mars W. | 36 11 35 | 2742 | 37 47 19 | 2742 | 39 23 1 | 2746 | 40 58 39 | 2751 |
| | α Arietis E. | 30 41 15 | 2725 | 29 5 8 | 2765 | 27 29 54 | 2808 | 25 55 37 | 2858 |
| | Jupiter E. | 33 44 29 | 2580 | 32 5 7 | 2599 | 30 26 11 | 2620 | 28 47 44 | 2640 |
| | Aldebaran E. | 63 1 22 | 2544 | 61 21 10 | 2564 | 59 41 25 | 2582 | 58 2 5 | 2601 |
| | Sun E. | 115 36 58 | 2869 | 114 3 59 | 2888 | 112 31 25 | 2908 | 110 59 16 | 2928 |
| 24 | α Aquilæ W. | 78 49 59 | 3103 | 80 18 5 | 3116 | 81 45 55 | 3129 | 83 13 30 | 3143 |
| | Saturn W. | 61 51 4 | 2681 | 63 28 10 | 2697 | 65 4 54 | 2713 | 66 41 17 | 2728 |
| | Fomalhaut W. | 51 38 41 | 3479 | 52 59 29 | 3461 | 54 20 37 | 3447 | 55 42 0 | 3436 |
| | Mars W. | 48 54 43 | 2792 | 50 29 21 | 2802 | 52 3 47 | 2812 | 53 37 59 | 2823 |
| | Jupiter E. | 20 42 19 | 2746 | 19 6 40 | 2769 | 17 31 32 | 2794 | 15 56 56 | 2821 |
| | Aldebaran E. | 49 51 49 | 2693 | 48 15 0 | 2711 | 46 38 35 | 2729 | 45 2 34 | 2747 |
| | Sun E. | 103 24 35 | 3022 | 101 54 49 | 3040 | 100 25 26 | 3058 | 98 56 25 | 3076 |
| 25 | α Aquilæ W. | 90 27 7 | 3215 | 91 52 58 | 3231 | 93 18 31 | 3247 | 94 43 45 | 3262 |
| | Saturn W. | 74 38 8 | 2802 | 76 12 33 | 2817 | 77 46 38 | 2831 | 79 20 26 | 2844 |
| | Fomalhaut W. | 62 31 22 | 3407 | 63 53 31 | 3406 | 65 15 41 | 3405 | 66 37 52 | 3405 |
| | Mars W. | 61 25 26 | 2878 | 62 58 13 | 2890 | 64 30 45 | 2901 | 66 3 3 | 2911 |
| | Aldebaran E. | 37 8 18 | 2834 | 35 34 34 | 2852 | 34 1 13 | 2868 | 32 28 13 | 2886 |
| | Sun E. | 91 36 38 | 3160 | 90 9 41 | 3175 | 88 43 2 | 3191 | 87 16 43 | 3206 |
| 26 | Saturn W. | 87 5 15 | 2906 | 88 37 26 | 2917 | 90 9 23 | 2928 | 91 41 6 | 2939 |
| | Fomalhaut W. | 73 28 25 | 3418 | 74 50 21 | 3422 | 76 12 13 | 3426 | 77 34 0 | 3431 |
| | Mars W. | 73 41 11 | 2963 | 75 12 10 | 2973 | 76 42 57 | 2983 | 78 13 31 | 2992 |
| | α Pegasi W. | 54 24 8 | 3132 | 55 51 38 | 3135 | 57 19 5 | 3139 | 58 46 27 | 3143 |
| | Aldebaran E. | 24 48 54 | 2978 | 23 18 13 | 2998 | 21 47 58 | 3021 | 20 18 11 | 3045 |
| | Sun E. | 80 9 22 | 3276 | 78 44 42 | 3288 | 77 20 16 | 3301 | 75 56 5 | 3313 |
| 27 | Saturn W. | 99 16 28 | 2987 | 100 46 57 | 2994 | 102 17 17 | 3003 | 103 47 26 | 3010 |
| | Mars W. | 85 43 40 | 3034 | 87 13 11 | 3041 | 88 42 33 | 3048 | 90 11 47 | 3056 |
| | Fomalhaut W. | 84 21 27 | 3459 | 85 42 37 | 3465 | 87 3 40 | 3472 | 88 24 35 | 3478 |
| | α Pegasi W. | 66 2 2 | 3165 | 67 28 53 | 3169 | 68 55 39 | 3173 | 70 22 20 | 3178 |
| | Sun E. | 68 58 25 | 3365 | 67 35 29 | 3374 | 66 12 43 | 3383 | 64 50 7 | 3392 |
| 28 | Saturn W. | 111 15 59 | 3043 | 112 45 18 | 3049 | 114 14 30 | 3054 | 115 43 36 | 3059 |
| | Mars W. | 97 35 52 | 3086 | 99 4 19 | 3091 | 100 32 40 | 3096 | 102 0 55 | 3101 |
| | Fomalhaut W. | 95 7 19 | 3515 | 96 27 27 | 3522 | 97 47 27 | 3530 | 99 7 18 | 3538 |
| | α Pegasi W. | 77 34 31 | 3197 | 79 0 44 | 3201 | 80 26 52 | 3204 | 81 52 57 | 3207 |
| | α Arietis W. | 33 56 56 | 3189 | 35 23 18 | 3184 | 36 49 46 | 3179 | 38 16 20 | 3176 |
| | Jupiter W. | 28 32 35 | 3095 | 30 0 51 | 3098 | 31 29 3 | 3101 | 32 57 11 | 3105 |
| | Sun E. | 57 59 24 | 3429 | 56 37 40 | 3434 | 55 16 2 | 3440 | 53 54 31 | 3446 |
| 29 | Mars W. | 109 20 46 | 3121 | 110 48 30 | 3125 | 112 16 9 | 3129 | 113 43 44 | 3133 |
| | α Pegasi W. | 89 2 29 | 3220 | 90 28 14 | 3222 | 91 53 57 | 3225 | 93 19 37 | 3226 |
| | α Arietis W. | 45 30 9 | 3162 | 46 57 4 | 3159 | 48 24 2 | 3157 | 49 51 2 | 3155 |
| | Jupiter W. | 40 17 1 | 3116 | 41 44 51 | 3117 | 43 12 40 | 3119 | 44 40 27 | 3119 |
| | Sun E. | 47 8 20 | 3469 | 45 47 21 | 3472 | 44 26 25 | 3476 | 43 5 34 | 3479 |
| 30 | α Pegasi W. | 100 27 28 | 3234 | 101 52 57 | 3236 | 103 18 24 | 3237 | 104 43 50 | 3238 |
| | α Arietis W. | 57 6 42 | 3143 | 58 33 59 | 3141 | 60 1 18 | 3139 | 61 28 40 | 3137 |
| | Jupiter W. | 51 59 14 | 3119 | 53 27 1 | 3119 | 54 54 47 | 3117 | 56 22 36 | 3117 |
| | Aldebaran W. | 23 44 34 | 3146 | 25 11 48 | 3139 | 26 39 10 | 3132 | 28 6 41 | 3126 |
| | Sun E. | 36 22 9 | 3494 | 35 1 38 | 3497 | 33 41 10 | 3499 | 32 20 45 | 3503 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER,

At 15h, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·4 ·2 ·1 | O ·3 |
| 2 | ·4 | O 1· ·2 3· |
| 3 | ·1● ·4 | O 2· 3· |
| 4 | 1·○ 2· 3· | O ·4 |
| 5 | ·2● 3· | O ·1 ·4 |
| 6 | ·3 1· | O 2· ·4 |
| 7 | ·3● 2· | O ·1 ·4 |
| 8 | ·2 ·1 | O ·3 4. |
| 9 | | O 1· ·2 3· 4· |
| 10 | ·1 | O 2· 3· 4· |
| 11 | 2· 3· | O 1· 4· |
| 12 | ·2● 3· | O ·1 4· |
| 13 | ·3 4· 1· | O 2. |
| 14 | 4· ·2 ·3 | O ·1 |
| 15 | 4· ·2 ·1 | O ·3 |
| 16 | 4· | O 1· ·2 3. |
| 17 | ·4 ·1 | O 2· 3· |
| 18 | ·4 2· 3· | O 1· |
| 19 | ·4 3· ·2 | O ●·1 |
| 20 | ·3 ·4 1· | O ·2 |
| 21 | ·3 | O ·4 ·1 O2· |
| 22 | ·2 1· | O ·3 ·4 |
| 23 | | O ·2 1. 3. ·4 |
| 24 | ·1 | O 2· 3· ·4 |
| 25 | 2· 3· | O 1· 4. |
| 26 | ·1● 3· ·2 | O 4· |
| 27 | 1·○ ·3 | O ·2 4· |
| 28 | ·3 | O 2· ·1 4· |
| 29 | ·2 1· | 4O· ·3 |
| 30 | 4· | O ·2 ·1 ·3 |
| 31 | 4· ·1 | O 2· 3· |

This Table represents, at 15h after *Mean Noon* of each day of the month, the relative positions of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) in an inverting telescope. Jupiter is indicated by the white circles (O) in the centre of the page; the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distinguish the Satellites from each other; and their positions are such as to indicate the directions of the Satellites' motions, which are in all cases to be considered as *towards the numerals*. When a Satellite is at its greatest elongation, the point is placed above or below the centre of the numeral. A white circle (O) at the left or right hand of the page, denotes that the Satellite placed by the side of it is *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow, of Jupiter.

# JULY, 1845.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| LITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope |
|---|---|---|---|---|
| | | h m s | h m s | |
| | 1 | 20 11 46 ·3 | 2 52 40 ·6 | Im. |
| | 3* | 14 40 11 ·8 | 21 28 4 ·8 | Im. |
| | 5 | 9 8 38 ·6 | 16 3 30 ·2 | Im. |
| | 7 | 3 37 2 ·9 | 10 38 53 ·2 | Im. |
| | 8 | 22 5 27 ·8 | 5 14 16 ·7 | Im. |
| | 10 | 16 33 52 ·7 | 23 49 40 ·3 | Im. |
| | 12 | 11 2 19 ·2 | 18 25 5 ·4 | Im. |
| | 14 | 5 30 43 ·3 | 13 0 28 ·1 | Im. |
| | 15 | 23 59 7 ·7 | 7 35 51 ·2 | Im. i |
| | 17 | 18 27 32 ·4 | 2 11 14 ·5 | Im. *  |
| | 19* | 12 55 58 ·7 | 20 46 39 ·5 | Im. |
| | 21 | 7 24 22 ·6 | 15 22 2 ·0 | Im. |
| | 23 | 1 52 47 ·1 | 9 57 25 ·1 | Im. |
| | 24 | 20 21 11 ·3 | 4 32 48 ·0 | Im. |
| | 26* | 14 49 37 ·9 | 23 8 13 ·2 | Im. |
| | 28 | 9 18 1 ·4 | 17 43 35 ·4 | Im. |
| | 30 | 3 46 26 ·4 | 12 18 59 ·0 | Im. |
| | 31 | 22 14 50 ·4 | 6 54 21 ·7 | Im. |
| | 1 | 21 10 9 ·4 | 3 51 13 ·4 | Im. |
| | 1 | 23 37 57 ·4 | 6 19 25 ·6 | Em. |
| | 5 | 10 29 28 ·4 | 17 24 33 ·3 | Im. |
| | 5† | 12 57 13 ·0 | 19 52 42 ·1 | Em. |
| | 8 | 23 47 40 ·0 | 6 56 45 ·7 | Im. |
| | 9 | 2 15 21 ·2 | 9 24 51 ·1 | Em. |
| | 12* | 13 6 56 ·3 | 20 30 3 ·0 | Im. |
| | 12† | 15 34 34 ·3 | 22 58 5 ·2 | Em. |
| | 16 | 2 25 5 ·2 | 10 2 12 ·7 | Im. |
| | 16 | 4 52 40 ·5 | 12 30 12 ·2 | Em. i e  |
| | 19† | 15 44 17 ·9 | 23 35 26 ·3 | Im. * * |
| | 19 | 18 11 50 ·0 | 2 3 22 ·6 | Em. |
| | 23 | 5 2 25 ·5 | 13 7 34 ·7 | Im. |
| | 23 | 7 29 54 ·6 | 15 35 28 ·0 | Em. |
| | 26 | 18 21 34 ·1 | 2 40 44 ·3 | Im. |
| | 26 | 20 49 0 ·2 | 5 8 34 ·6 | Em. |
| | 30 | 7 39 40 ·0 | 16 12 51 ·0 | Im. |
| | 30 | 10 7 2 ·9 | 18 40 38 ·0 | Em. |
| [. | 7 | 8 22 58 ·7 | 15 25 35 ·9 | Im. |
| | 7 | 10 41 17 ·7 | 17 44 17 ·6 | Em. |
| | 14† | 12 24 3 ·1 | 19 54 55 ·9 | Im. |
| | 14* | 14 41 30 ·3 | 22 12 45 ·6 | Em.  |
| | 21 | 16 24 32 ·4 | 0 23 40 ·5 | Im. i e |
| | 21 | 18 41 7 ·7 | 2 40 38 ·3 | Em. * * |
| | 28 | 20 24 52 ·5 | 4 52 16 ·1 | Im. |
| | 28 | 22 40 38 ·2 | 7 8 24 ·1 | Em. |

## APPROXIMATE SIDEREAL TIMES

OF THE

## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER

AND OF THE

## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shado | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egr |
| | d h m | d h m | d h m | d h m | d h m | d |
| I. | | 1 6 19 | 1 6 49 | 1 9 2 | 0 5 33 | 1 7 |
| | | 3 0 55 | 2 1 26 | 2 3 38 | 2 0 9 | 2 2 |
| | | 5† 19 32 | 4† 20 2 | 4† 22 15 | 4 18 45 | 4* 20 |
| | | 7 14 8 | 6 14 39 | 6 16 51 | 6 13 20 | 6 15 |
| | | 9 8 44 | 8 9 15 | 8 11 27 | 8 7 56 | 8 10 |
| | | 10 3 20 | 9 3 51 | 9 6 4 | 9 2 31 | 9 4 |
| | | 12* 21 56 | 11† 22 27 | 11 0 40 | 11* 21 7 | 11† 23 |
| | | 14 16 32 | 13 17 4 | 13† 19 16 | 13 15 42 | 13 17 |
| | In the | 16 11 8 | 15 11 40 | 15 13 52 | 15 10 18 | 15 12 |
| | | 17 5 43 | 16 6 16 | 17 8 28 | 16 4 53 | 16 7 |
| | Shadow. | 19 0 19 | 18 0 52 | 18 3 4 | 18† 23 29 | 18 1 |
| | | 21 18 55 | 20† 19 28 | 20* 21 40 | 20 18 5 | 20* 20 |
| | | 23 13 31 | 22 14 4 | 22 16 16 | 22 12 40 | 22 14 |
| | | 24 8 6 | 24 8 40 | 24 10 51 | 23 7 16 | 24 9 |
| | | 26 2 42 | 25 3 15 | 25 5 27 | 25 1 51 | 25 4 |
| | | 28* 21 17 | 27* 21 51 | 27† 0 3 | 27* 20 27 | 27* 2 |
| | | 30 15 53 | 29 16 27 | 29 18 39 | 29 15 2 | 29 1 |
| | | | 31 11 2 | 31 13 14 | 31 9 38 | 31 1 |
| II. | 1 6 25 | 2 8 56 | 3 1 8 | 3 3 39 | 3† 22 31 | 3 |
| | 5† 20 2 | 5† 22 33 | 7 14 43 | 7 17 13 | 7 12 2 | 7 1 |
| | 9 9 37 | 9 12 8 | 10 4 17 | 10 6 47 | 10 1 33 | 10 |
| | 12† 23 14 | 12 1 44 | 14 17 51 | 14* 20 21 | 14 15 4 | 14 1 |
| | 16 12 48 | 16 15 18 | 17 7 24 | 18 9 54 | 17 4 35 | 17 |
| | 19 2 23 | 19 4 53 | 21* 20 57 | 21† 23 26 | 21 18 7 | 21* 2 |
| | 23 15 57 | 23 18 26 | 25 10 30 | 25 12 59 | 24 7 38 | 25 1 |
| | 26 5 31 | 26 8 0 | 28† 0 1 | 28 2 30 | 28* 21 9 | 28* 2 |
| | 30 19 3 | 30* 21 32 | | | | |
| III. | 7* 20 42 | 7 23 3 | 3 6 23 | 4 8 45 | 3 1 6 | 3 |
| | 14 1 23 | 14 3 41 | 11 11 5 | 11 13 24 | 10 5 35 | 11 |
| | 21 6 0 | 22 8 15 | 18 15 44 | 18 18 0 | 18 10 4 | 18 1 |
| | 29 10 34 | 29 12 45 | 25* 20 20 | 25* 22 33 | 25 14 34 | 25 1 |

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·840658. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +0·5068 | −1·3023 | +9·8947 | +0·7797 | 17 19 33·94 | 100 | 181 | ·496 |
| 2 | 0·5463 | 1·3009 | 9·8965 | 0·7798 | 17 15 38·03 | 101 | 182 | ·498 |
| 3 | 0·5824 | 1·2995 | 9·8984 | 0·7798 | 17 11 42·12 | 102 | 183 | ·501 |
| 4 | +0·6156 | −1·2979 | +9·9002 | +0·7797 | 17 7 46·21 | 103 | 184 | ·504 |
| 5 | 0·6463 | 1·2962 | 9·9020 | 0·7796 | 17 3 50·30 | 104 | 185 | ·507 |
| 6 | 0·6749 | 1·2944 | 9·9037 | 0·7795 | 16 59 54·39 | 105 | 186 | ·509 |
| 7 | +0·7016 | −1·2924 | +9·9055 | +0·7794 | 16 55 58·48 | 106 | 187 | ·512 |
| | 0·7266 | 1·2903 | 9·9072 | 0·7792 | 16 52 2·57 | 107 | 188 | ·515 |
| | 0·7502 | 1·2881 | 9·9090 | 0·7789 | 16 48 6·66 | 108 | 189 | ·517 |
| | +0·7725 | −1·2858 | +9·9107 | +0·7787 | 16 44 10·74 | 109 | 190 | ·520 |
| | 0·7935 | 1·2833 | 9·9124 | 0·7784 | 16 40 14·83 | 110 | 191 | ·523 |
| | 0·8134 | 1·2807 | 9·9141 | 0·7780 | 16 36 18·92 | 111 | 192 | ·526 |
| | +0·8324 | −1·2779 | +9·9158 | +0·7777 | 16 32 23·01 | 112 | 193 | ·528 |
| | 0·8505 | 1·2750 | 9·9174 | 0·7773 | 16 28 27·10 | 113 | 194 | ·531 |
| | 0·8677 | 1·2720 | 9·9191 | 0·7768 | 16 24 31·19 | 114 | 195 | ·534 |
| | +0·8841 | −1·2688 | +9·9207 | +0·7764 | 16 20 35·28 | 115 | 196 | ·537 |
| | 0·8998 | 1·2655 | 9·9223 | 0·7759 | 16 16 39·37 | 116 | 197 | ·539 |
| | 0·9149 | 1·2620 | 9·9239 | 0·7753 | 16 12 43·46 | 117 | 198 | ·542 |
| | +0·9294 | −1·2584 | +9·9255 | +0·7748 | 16 8 47·55 | 118 | 199 | ·545 |
| | 0·9433 | 1·2546 | 9·9270 | 0·7742 | 16 4 51·64 | 119 | 200 | ·548 |
| | 0·9566 | 1·2507 | 9·9286 | 0·7736 | 16 0 55·73 | 120 | 201 | ·550 |
| | +0·9694 | −1·2466 | +9·9301 | +0·7730 | 15 56 59·82 | 121 | 202 | ·553 |
| | 0·9817 | 1·2424 | 9·9316 | 0·7723 | 15 53 3·91 | 122 | 203 | ·556 |
| | 0·9936 | 1·2380 | 9·9331 | 0·7716 | 15 49 8·00 | 123 | 204 | ·559 |
| | +1·0051 | −1·2334 | +9·9345 | +0·7709 | 15 45 12·09 | 124 | 205 | ·561 |
| | 1·0161 | 1·2286 | 9·9360 | 0·7702 | 15 41 16·18 | 125 | 206 | ·564 |
| | 1·0267 | 1·2237 | 9·9374 | 0·7695 | 15 37 20·27 | 126 | 207 | ·567 |
| | +1·0370 | −1·2186 | +9·9388 | +0·7687 | 15 33 24·36 | 127 | 208 | ·569 |
| | 1·0470 | 1·2133 | 9·9402 | 0·7679 | 15 29 28·45 | 128 | 209 | ·572 |
| | 1·0566 | 1·2078 | 9·9416 | 0·7672 | 15 25 32·54 | 129 | 210 | ·575 |
| | 1·0658 | 1·2021 | 9·9430 | 0·7664 | 15 21 36·63 | 130 | 211 | ·578 |
| | +1·0748 | −1·1962 | +9·9443 | +0·7655 | 15 17 40·72 | 131 | 212 | ·580 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, to be added to / subt. from Apparent Time. | Di fo 1 ho |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | s |
| Frid. | 1 | 8 45 49 ·79 | 9 ·700 | N.18 0 54 ·4 | 38 ·23 | 1 6 ·57 | 6 0 ·28 | 0 ·1 |
| Sat. | 2 | 8 49 42 ·60 | 9 ·675 | 17 45 37 ·0 | 38 ·95 | 1 6 ·48 | 5 56 ·54 | 0 ·1 |
| *Sun.* | 3 | 8 53 34 ·81 | 9 ·650 | 17 30 2 ·3 | 39 ·66 | 1 6 ·40 | 5 52 ·21 | 0 ·2 |
| Mon. | 4 | 8 57 26 ·42 | 9 ·625 | 17 14 10 ·5 | 40 ·35 | 1 6 ·31 | 5 47 ·28 | 0 ·2 |
| Tues. | 5 | 9 1 17 ·43 | 9 ·600 | 16 58 2 ·0 | 41 ·04 | 1 6 ·23 | 5 41 ·74 | 0 ·2 |
| Wed. | 6 | 9 5 7 ·83 | 9 ·575 | 16 41 37 ·1 | 41 ·71 | 1 6 ·14 | 5 35 ·60 | 0 ·2 |
| Thur. | 7 | 9 8 57 ·62 | 9 ·549 | 16 24 56 ·0 | 42 ·37 | 1 6 ·06 | 5 28 ·86 | 0 ·3 |
| Frid. | 8 | 9 12 46 ·80 | 9 ·525 | 16 7 59 ·1 | 43 ·01 | 1 5 ·97 | 5 21 ·51 | 0 ·3 |
| Sat. | 9 | 9 16 35 ·39 | 9 ·500 | 15 50 46 ·8 | 43 ·65 | 1 5 ·89 | 5 13 ·56 | 0 ·3 |
| *Sun.* | 10 | 9 20 23 ·38 | 9 ·475 | 15 33 19 ·2 | 44 ·27 | 1 5 ·80 | 5 5 ·02 | 0 ·3 |
| Mon. | 11 | 9 24 10 ·78 | 9 ·450 | 15 15 36 ·8 | 44 ·88 | 1 5 ·72 | 4 55 ·89 | 0 ·4 |
| Tues. | 12 | 9 27 57 ·59 | 9 ·427 | 14 57 39 ·8 | 45 ·47 | 1 5 ·64 | 4 46 ·18 | 0 ·4 |
| Wed. | 13 | 9 31 43 ·83 | 9 ·404 | 14 39 28 ·5 | 46 ·05 | 1 5 ·56 | 4 35 ·89 | 0 ·4 |
| Thur. | 14 | 9 35 29 ·52 | 9 ·380 | 14 21 3 ·3 | 46 ·62 | 1 5 ·48 | 4 25 ·05 | 0 ·4 |
| Frid. | 15 | 9 39 14 ·64 | 9 ·358 | 14 2 24 ·4 | 47 ·18 | 1 5 ·41 | 4 13 ·65 | 0 ·4 |
| Sat. | 16 | 9 42 59 ·23 | 9 ·336 | 13 43 32 ·1 | 47 ·73 | 1 5 ·33 | 4 1 ·72 | 0 ·5 |
| *Sun.* | 17 | 9 46 43 ·29 | 9 ·315 | 13 24 26 ·7 | 48 ·26 | 1 5 ·26 | 3 49 ·26 | 0 ·5 |
| Mon. | 18 | 9 50 26 ·84 | 9 ·294 | 13 5 8 ·5 | 48 ·78 | 1 5 ·19 | 3 36 ·29 | 0 ·5 |
| Tues. | 19 | 9 54 9 ·90 | 9 ·274 | 12 45 37 ·8 | 49 ·28 | 1 5 ·12 | 3 22 ·83 | 0 ·5 |
| Wed. | 20 | 9 57 52 ·47 | 9 ·255 | 12 25 55 ·0 | 49 ·78 | 1 5 ·05 | 3 8 ·88 | 0 ·6 |
| Thur. | 21 | 10 1 34 ·58 | 9 ·236 | 12 6 0 ·2 | 50 ·27 | 1 4 ·98 | 2 54 ·48 | 0 ·6 |
| Frid. | 22 | 10 5 16 ·24 | 9 ·218 | 11 45 53 ·8 | 50 ·73 | 1 4 ·91 | 2 39 ·63 | 0 ·6 |
| Sat. | 23 | 10 8 57 ·46 | 9 ·201 | 11 25 36 ·2 | 51 ·20 | 1 4 ·85 | 2 24 ·34 | 0 ·6 |
| *Sun.* | 24 | 10 12 38 ·28 | 9 ·184 | 11 5 7 ·5 | 51 ·64 | 1 4 ·78 | 2 8 ·65 | 0 ·6 |
| Mon. | 25 | 10 16 18 ·69 | 9 ·168 | 10 44 28 ·2 | 52 ·07 | 1 4 ·72 | 1 52 ·55 | 0 ·6 |
| Tues. | 26 | 10 19 58 ·71 | 9 ·152 | 10 23 38 ·6 | 52 ·49 | 1 4 ·66 | 1 36 ·06 | 0 ·7 |
| Wed. | 27 | 10 23 38 ·36 | 9 ·137 | 10 2 38 ·9 | 52 ·89 | 1 4 ·61 | 1 19 ·20 | 0 ·7 |
| Thur. | 28 | 10 27 17 ·65 | 9 ·123 | 9 41 29 ·6 | 53 ·28 | 1 4 ·55 | 1 1 ·98 | 0 ·7 |
| Frid. | 29 | 10 30 56 ·59 | 9 ·109 | 9 20 10 ·9 | 53 ·65 | 1 4 ·50 | 0 44 ·43 | 0 ·7 |
| Sat. | 30 | 10 34 35 ·20 | 9 ·095 | 8 58 43 ·2 | 54 ·01 | 1 4 ·45 | 0 26 ·54 | 0 ·7 |
| *Sun.* | 31 | 10 38 13 ·49 | 9 ·083 | 8 37 6 ·9 | 54 ·36 | 1 4 ·40 | 0 8 ·32 | 0 ·7 |
| Mon. | 32 | 10 41 51 ·48 | | N. 8 15 22 ·3 | | 1 4 ·35 | 0 10 ·20 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0ˢ·18 from the *Sidereal* Ti

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be subt. from / added to Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| id. | 1 | 8 45 48 ·82 | N.18 0 58 ·2 | 15 47 ·0 | 6 0 ·29 | 8 39 48 ·53 |
| t. | 2 | 8 49 41 ·65 | 17 45 40 ·9 | 15 47 ·1 | 5 56 ·56 | 8 43 45 ·09 |
| n. | 3 | 8 53 33 ·87 | 17 30 6 ·2 | 15 47 ·3 | 5 52 ·23 | 8 47 41 ·64 |
| on. | 4 | 8 57 25 ·50 | 17 14 14 ·5 | 15 47 ·4 | 5 47 ·30 | 8 51 38 ·20 |
| es. | 5 | 9 1 16 ·52 | 16 58 5 ·9 | 15 47 ·5 | 5 41 ·77 | 8 55 34 ·75 |
| ed. | 6 | 9 5 6 ·93 | 16 41 40 ·9 | 15 47 ·7 | 5 35 ·63 | 8 59 31 ·31 |
| ur. | 7 | 9 8 56 ·74 | 16 24 59 ·9 | 15 47 ·8 | 5 28 ·89 | 9 3 27 ·86 |
| id. | 8 | 9 12 45 ·95 | 16 8 3 ·0 | 15 48 ·0 | 5 21 ·54 | 9 7 24 ·41 |
| t. | 9 | 9 16 34 ·56 | 15 50 50 ·6 | 15 48 ·2 | 5 13 ·59 | 9 11 20 ·97 |
| n. | 10 | 9 20 22 ·58 | 15 33 23 ·0 | 15 48 ·3 | 5 5 ·05 | 9 15 17 ·52 |
| on. | 11 | 9 24 10 ·00 | 15 15 40 ·5 | 15 48 ·5 | 4 55 ·92 | 9 19 14 ·08 |
| es. | 12 | 9 27 56 ·84 | 14 57 43 ·4 | 15 48 ·7 | 4 46 ·21 | 9 23 10 ·63 |
| ed. | 13 | 9 31 43 ·11 | 14 39 32 ·1 | 15 48 ·9 | 4 35 ·92 | 9 27 7 ·19 |
| ur. | 14 | 9 35 28 ·82 | 14 21 6 ·7 | 15 49 ·0 | 4 25 ·08 | 9 31 3 ·74 |
| id. | 15 | 9 39 13 ·98 | 14 2 27 ·7 | 15 49 ·2 | 4 13 ·68 | 9 35 0 ·30 |
| t. | 16 | 9 42 58 ·60 | 13 43 35 ·3 | 15 49 ·4 | 4 1 ·75 | 9 38 56 ·85 |
| n. | 17 | 9 46 42 ·70 | 13 24 29 ·8 | 15 49 ·6 | 3 49 ·29 | 9 42 53 ·40 |
| on. | 18 | 9 50 26 ·28 | 13 5 11 ·4 | 15 49 ·8 | 3 36 ·32 | 9 46 49 ·96 |
| es. | 19 | 9 54 9 ·37 | 12 45 40 ·6 | 15 50 ·0 | 3 22 ·86 | 9 50 46 ·51 |
| ed. | 20 | 9 57 51 ·98 | 12 25 57 ·6 | 15 50 ·2 | 3 8 ·91 | 9 54 43 ·07 |
| ur. | 21 | 10 1 34 ·13 | 12 6 2 ·6 | 15 50 ·4 | 2 54 ·51 | 9 58 39 ·62 |
| id. | 22 | 10 5 15 ·83 | 11 45 56 ·0 | 15 50 ·6 | 2 39 ·66 | 10 2 36 ·17 |
| t. | 23 | 10 8 57 ·10 | 11 25 38 ·2 | 15 50 ·8 | 2 24 ·37 | 10 6 32 ·73 |
| n. | 24 | 10 12 37 ·95 | 11 5 9 ·4 | 15 51 ·0 | 2 8 ·67 | 10 10 29 ·28 |
| n. | 25 | 10 16 18 ·40 | 10 44 29 ·8 | 15 51 ·2 | 1 52 ·57 | 10 14 25 ·83 |
| es. | 26 | 10 19 58 ·46 | 10 23 40 ·0 | 15 51 ·4 | 1 36 ·08 | 10 18 22 ·39 |
| d. | 27 | 10 23 38 ·15 | 10 2 40 ·1 | 15 51 ·6 | 1 19 ·22 | 10 22 18 ·94 |
| ur. | 28 | 10 27 17 ·49 | 9 41 30 ·5 | 15 51 ·8 | 1 2 ·00 | 10 26 15 ·49 |
| d. | 29 | 10 30 56 ·48 | 9 20 11 ·6 | 15 52 ·0 | 0 44 ·44 | 10 30 12 ·04 |
| — | 30 | 10 34 35 ·14 | 8 58 43 ·7 | 15 52 ·3 | 0 26 ·54 | 10 34 8 ·60 |
| a. | 31 | 10 38 13 ·47 | 8 37 7 ·1 | 15 52 ·5 | 0 8 ·32 | 10 38 5 ·15 |
| n. | 32 | 10 41 51 ·50 | N. 8 15 22 ·1 | 15 52 ·7 | 0 10 ·20 | 10 42 1 ·70 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for Mean Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. *Noon.* | THE SUN'S *Apparent* Latitude. *Noon.* | Logarithm of the Radius Vector of the Earth. *Noon.* | THE MOON'S Semidiameter. *Noon.* | THE MOON'S Semidiameter. *Midnight.* | THE MOON'S Horizontal Parallax. *Noon.* | THE MOON'S Horizontal Parallax. *Midnight.* |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 129 1 1·5 | S. 0·30 | 0·0063365 | 14 43·7 | 14 44·8 | 54 2·8 | 54 6·9 |
| 2 | 129 58 29·3 | 0·36 | 0·0062769 | 14 46·3 | 14 48·3 | 54 12·6 | 54 19·6 |
| 3 | 130 55 58·1 | 0·39 | 0·0062148 | 14 50·5 | 14 53·0 | 54 27·7 | 54 37·0 |
| 4 | 131 53 27·9 | 0·39 | 0·0061503 | 14 55·8 | 14 58·8 | 54 47·2 | 54 58·2 |
| 5 | 132 50 58·7 | 0·36 | 0·0060835 | 15 2·1 | 15 5·7 | 55 10·4 | 55 23·7 |
| 6 | 133 48 30·4 | 0·30 | 0·0060143 | 15 9·5 | 15 13·6 | 55 37·7 | 55 52·7 |
| 7 | 134 46 3·0 | 0·21 | 0·0059430 | 15 18·0 | 15 22·5 | 56 8·7 | 56 25·2 |
| 8 | 135 43 36·4 | S. 0·10 | 0·0058695 | 15 27·3 | 15 32·4 | 56 43·0 | 57 1·5 |
| 9 | 136 41 10·7 | N. 0·02 | 0·0057942 | 15 37·6 | 15 43·0 | 57 20·6 | 57 40·7 |
| 10 | 137 38 46·0 | 0·15 | 0·0057171 | 15 48·7 | 15 54·3 | 58 1·3 | 58 22·0 |
| 11 | 138 36 22·1 | 0·29 | 0·0056384 | 16 0·0 | 16 5·5 | 58 42·8 | 59 3·2 |
| 12 | 139 33 59·1 | 0·42 | 0·0055580 | 16 10·9 | 16 15·9 | 59 22·9 | 59 41·1 |
| 13 | 140 31 37·1 | 0·54 | 0·0054762 | 16 20·5 | 16 24·5 | 59 58·1 | 60 12·7 |
| 14 | 141 29 16·2 | 0·63 | 0·0053932 | 16 27·7 | 16 30·0 | 60 24·7 | 60 33·2 |
| 15 | 142 26 56·3 | 0·71 | 0·0053091 | 16 31·4 | 16 31·9 | 60 38·2 | 60 39·6 |
| 16 | 143 24 37·7 | 0·76 | 0·0052239 | 16 31·0 | 16 29·2 | 60 36·8 | 60 30·1 |
| 17 | 144 22 20·3 | 0·78 | 0·0051378 | 16 26·4 | 16 22·4 | 60 19·5 | 60 5·3 |
| 18 | 145 20 4·2 | 0·77 | 0·0050508 | 16 17·6 | 16 11·9 | 59 47·5 | 59 26·7 |
| 19 | 146 17 49·6 | 0·73 | 0·0049629 | 16 5·6 | 15 58·8 | 59 3·6 | 58 38·7 |
| 20 | 147 15 36·4 | 0·66 | 0·0048740 | 15 51·8 | 15 44·5 | 58 12·9 | 57 46·1 |
| 21 | 148 13 24·9 | 0·57 | 0·0047842 | 15 37·2 | 15 30·1 | 57 19·4 | 56 53·2 |
| 22 | 149 11 15·1 | 0·45 | 0·0046935 | 15 23·2 | 15 16·6 | 56 27·8 | 56 3·8 |
| 23 | 150 9 6·9 | 0·33 | 0·0046018 | 15 10·6 | 15 5·1 | 55 41·6 | 55 21·4 |
| 24 | 151 7 0·6 | 0·19 | 0·0045090 | 15 0·2 | 14 55·9 | 55 3·3 | 54 47·7 |
| 25 | 152 4 56·1 | N. 0·06 | 0·0044148 | 14 52·3 | 14 49·4 | 54 34·5 | 54 23·9 |
| 26 | 153 2 53·4 | S. 0·06 | 0·0043193 | 14 47·2 | 14 45·7 | 54 15·9 | 54 10·3 |
| 27 | 154 0 52·6 | 0·17 | 0·0042223 | 14 44·9 | 14 44·6 | 54 7·2 | 54 6·3 |
| 28 | 154 58 53·7 | 0·26 | 0·0041238 | 14 45·0 | 14 45·9 | 54 7·6 | 54 11·1 |
| 29 | 155 56 56·7 | 0·32 | 0·0040237 | 14 47·4 | 14 49·4 | 54 16·6 | 54 23·7 |
| 30 | 156 55 1·5 | 0·36 | 0·0039219 | 14 51·7 | 14 54·4 | 54 32·4 | 54 42·3 |
| 31 | 157 53 8·0 | 0·37 | 0·0038184 | 14 57·5 | 15 0·9 | 54 53·7 | 55 5·9 |
| 32 | 158 51 16·4 | S. 0·35 | 0·0037132 | 15 4·5 | 15 8·2 | 55 19·1 | 55 32·7 |

## MEAN TIME.

### THE MOON'S

| Day of the Month. | Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| 1 | 109 5 3·7 | 115 2 18·6 | S.4 11 13·8 | S.4 27 3·8 | 27·8 | 23 23·9 |
| 2 | 121 1 2·5 | 127 1 26·3 | 4 40 0·6 | 4 49 53·6 | 28·8 | ☌ |
| 3 | 133 3 39·1 | 139 7 48·8 | 4 56 34·3 | 4 59 55·5 | 0·2 | 0 9·0 |
| 4 | 145 14 2·1 | 151 22 25·3 | 4 59 51·6 | 4 56 19·3 | 1·2 | 0 53·2 |
| 5 | 157 33 4·7 | 163 46 7·3 | 4 49 17·3 | 4 38 46·4 | 2·2 | 1 37·1 |
| 6 | 170 1 40·7 | 176 19 54·6 | 4 24 49·9 | 4 7 32·8 | 3·2 | 2 21·1 |
| 7 | 182 41 0·3 | 189 5 10·3 | 3 47 3·4 | 3 23 31·2 | 4·2 | 3 6·1 |
| 8 | 195 32 39·7 | 202 3 44·1 | 2 57 9·2 | 2 28 13·0 | 5·2 | 3 52·7 |
| 9 | 208 38 41·1 | 215 17 48·5 | 1 57 0·1 | 1 23 50·9 | 6·2 | 4 41·8 |
| 10 | 222 1 23·5 | 228 49 42·4 | S.0 49 8·9 | S.0 13 20·3 | 7·2 | 5 33·9 |
| 11 | 235 42 58·6 | 242 41 21·5 | N.0 23 5·9 | N.0 59 38·1 | 8·2 | 6 29·4 |
| 12 | 249 44 55·5 | 256 53 37·3 | 1 35 41·5 | 2 10 39·6 | 9·2 | 7 27·9 |
| 13 | 264 7 16·1 | 271 25 30·5 | 2 43 54·8 | 3 14 48·6 | 10·2 | 8 28·4 |
| 14 | 278 47 49·6 | 286 13 31·2 | 3 42 43·1 | 4 7 3·3 | 11·2 | 9 29·2 |
| 15 | 293 41 43·1 | 301 11 24·2 | 4 27 17·3 | 4 42 58·4 | 12·2 | 10 28·9 |
| 16 | 308 41 27·0 | 316 10 39·3 | 4 53 47·3 | 4 59 31·7 | 13·2 | 11 26·3 |
| 17 | 323 37 49·0 | 331 1 45·6 | 5 0 8·1 | 4 55 41·1 | 14·2 | 12 21·2 |
| 18 | 338 21 25·4 | 345 35 52·5 | 4 46 22·9 | 4 32 32·7 | 15·2 | 13 13·7 |
| 19 | 352 44 21·3 | 359 46 18·3 | 4 14 35·3 | 3 52 59·1 | 16·2 | 14 4·4 |
| 20 | 6 41 21·8 | 13 29 22·2 | 3 28 14·8 | 3 0 54·3 | 17·2 | 14 54·0 |
| 21 | 20 10 20·4 | 26 44 27·5 | 2 31 29·3 | 2 0 30·4 | 18·2 | 15 42·9 |
| 22 | 33 12 3·0 | 39 33 33·1 | 1 28 26·2 | N.0 55 43·8 | 19·2 | 16 31·7 |
| 23 | 45 49 29·6 | 52 0 27·4 | N.0 22 47·9 | S.0 9 59·2 | 20·2 | 17 20·5 |
| 24 | 58 7 5·6 | 64 10 3·7 | S.0 42 17·3 | 1 13 47·2 | 21·2 | 18 9·3 |
| 25 | 70 10 2·5 | 76 7 42·5 | 1 44 11·9 | 2 13 15·5 | 22·2 | 18 57·9 |
| 26 | 82 3 43·0 | 87 58 42·2 | 2 40 43·5 | 3 6 21·5 | 23·2 | 19 46·0 |
| 27 | 93 53 16·5 | 99 47 59·5 | 3 29 56·0 | 3 51 14·7 | 24·2 | 20 33·4 |
| 28 | 105 43 22·4 | 111 39 53·5 | 4 10 5·1 | 4 26 15·3 | 25·2 | 21 19·9 |
| 29 | 117 37 57·6 | 123 37 56·1 | 4 39 34·4 | 4 49 52·0 | 26·2 | 22 5·4 |
| 30 | 129 40 6·9 | 135 44 44·6 | 4 56 58·7 | 5 0 46·2 | 27·2 | 22 50·2 |
| 31 | 141 52 0·0 | 148 2 0·9 | 5 1 8·2 | 4 57 59·5 | 28·2 | 23 34·6 |
| 32 | 154 14 52·2 | 160 30 36·3 | S.4 51 17·3 | S.4 41 1·4 | 29·2 | ☌ |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 7 20 11 ·03 | N.17 57 5 ·1 | 55 ·17 |
| 1 | 7 22 13 ·59 | 17 51 34 ·1 | 55 ·97 |
| 2 | 7 24 16 ·06 | 17 45 58 ·3 | 56 ·77 |
| 3 | 7 26 18 ·42 | 17 40 17 ·7 | 57 ·57 |
| 4 | 7 28 20 ·69 | 17 34 32 ·3 | 58 ·37 |
| 5 | 7 30 22 ·85 | 17 28 42 ·1 | 59 ·15 |
| 6 | 7 32 24 ·92 | 17 22 47 ·2 | 59 ·93 |
| 7 | 7 34 26 ·89 | 17 16 47 ·6 | 60 ·70 |
| 8 | 7 36 28 ·76 | 17 10 43 ·4 | 61 ·48 |
| 9 | 7 38 30 ·52 | 17 4 34 ·5 | 62 ·25 |
| 10 | 7 40 32 ·19 | 16 58 21 ·0 | 63 ·02 |
| 11 | 7 42 33 ·76 | 16 52 2 ·9 | 63 ·78 |
| 12 | 7 44 35 ·23 | 16 45 40 ·2 | 64 ·53 |
| 13 | 7 46 36 ·60 | 16 39 13 ·0 | 65 ·28 |
| 14 | 7 48 37 ·86 | 16 32 41 ·3 | 66 ·03 |
| 15 | 7 50 39 ·02 | 16 26 5 ·1 | 66 ·77 |
| 16 | 7 52 40 ·09 | 16 19 24 ·5 | 67 ·50 |
| 17 | 7 54 41 ·05 | 16 12 39 ·5 | 68 ·23 |
| 18 | 7 56 41 ·91 | 16 5 50 ·1 | 68 ·95 |
| 19 | 7 58 42 ·67 | 15 58 56 ·4 | 69 ·68 |
| 20 | 8 0 43 ·33 | 15 51 58 ·3 | 70 ·40 |
| 21 | 8 2 43 ·90 | 15 44 55 ·9 | 71 ·10 |
| 22 | 8 4 44 ·36 | 15 37 49 ·3 | 71 ·80 |
| 23 | 8 6 44 ·72 | N.15 30 38 ·5 | 72 ·50 |
| | *SATURDAY* 2. | | |
| 0 | 8 8 44 ·98 | N.15 23 23 ·5 | 73 ·20 |
| 1 | 8 10 45 ·14 | 15 16 4 ·3 | 73 ·88 |
| 2 | 8 12 45 ·21 | 15 8 41 ·0 | 74 ·55 |
| 3 | 8 14 45 ·18 | 15 1 13 ·7 | 75 ·25 |
| 4 | 8 16 45 ·05 | 14 53 42 ·2 | 75 ·92 |
| 5 | 8 18 44 ·82 | 14 46 6 ·7 | 76 ·57 |
| 6 | 8 20 44 ·50 | 14 38 27 ·3 | 77 ·23 |
| 7 | 8 22 44 ·08 | 14 30 43 ·9 | 77 ·90 |
| 8 | 8 24 43 ·57 | 14 22 56 ·5 | 78 ·53 |
| 9 | 8 26 42 ·96 | 14 15 5 ·3 | 79 ·18 |
| 10 | 8 28 42 ·25 | 14 7 10 ·2 | 79 ·83 |
| 11 | 8 30 41 ·45 | 13 59 11 ·2 | 80 ·45 |
| 12 | 8 32 40 ·56 | 13 51 8 ·5 | 81 ·08 |
| 13 | 8 34 39 ·58 | 13 43 2 ·0 | 81 ·70 |
| 14 | 8 36 38 ·51 | 13 34 51 ·8 | 82 ·32 |
| 15 | 8 38 37 ·34 | 13 26 37 ·9 | 82 ·92 |
| 16 | 8 40 36 ·09 | 13 18 20 ·4 | 83 ·53 |
| 17 | 8 42 34 ·75 | 13 9 59 ·2 | 84 ·12 |
| 18 | 8 44 33 ·32 | 13 1 34 ·5 | 84 ·72 |
| 19 | 8 46 31 ·81 | 12 53 6 ·2 | 85 ·32 |
| 20 | 8 48 30 ·21 | 12 44 34 ·3 | 85 ·87 |
| 21 | 8 50 28 ·53 | 12 35 59 ·1 | 86 ·47 |
| 22 | 8 52 26 ·76 | 12 27 20 ·3 | 87 ·02 |
| 23 | 8 54 24 ·92 | 12 18 38 ·2 | 87 ·58 |
| 24 | 8 56 22 ·99 | N.12 9 52 ·7 | |

| Hour. | Right Ascension. | Declination. | Di f |
|---|---|---|---|
| | *SUNDAY* 3. | | |
| | h m s | ° ′ ″ | |
| 0 | 8 56 22 ·99 | N.12 9 52 ·7 | 8 |
| 1 | 8 58 20 ·98 | 12 1 3 ·9 | 8 |
| 2 | 9 0 18 ·90 | 11 52 11 ·7 | 8 |
| 3 | 9 2 16 ·74 | 11 43 16 ·3 | 8 |
| 4 | 9 4 14 ·51 | 11 34 17 ·7 | 9 |
| 5 | 9 6 12 ·20 | 11 25 15 ·9 | 9 |
| 6 | 9 8 9 ·82 | 11 16 11 ·0 | 9 |
| 7 | 9 10 7 ·36 | 11 7 2 ·9 | 9 |
| 8 | 9 12 4 ·84 | 10 57 51 ·8 | 9 |
| 9 | 9 14 2 ·25 | 10 48 37 ·7 | 9 |
| 10 | 9 15 59 ·59 | 10 39 20 ·5 | 9 |
| 11 | 9 17 56 ·87 | 10 30 0 ·4 | 9 |
| 12 | 9 19 54 ·08 | 10 20 37 ·4 | 9 |
| 13 | 9 21 51 ·23 | 10 11 11 ·5 | 9 |
| 14 | 9 23 48 ·32 | 10 1 42 ·8 | 9 |
| 15 | 9 25 45 ·35 | 9 52 11 ·2 | 9 |
| 16 | 9 27 42 ·32 | 9 42 36 ·9 | 9 |
| 17 | 9 29 39 ·24 | 9 32 59 ·9 | 9 |
| 18 | 9 31 36 ·10 | 9 23 20 ·2 | 9 |
| 19 | 9 33 32 ·91 | 9 13 37 ·8 | 9 |
| 20 | 9 35 29 ·67 | 9 3 52 ·8 | 9 |
| 21 | 9 37 26 ·39 | 8 54 5 ·3 | 9 |
| 22 | 9 39 23 ·05 | 8 44 15 ·2 | 9 |
| 23 | 9 41 19 ·67 | N. 8 34 22 ·6 | 9 |
| | *MONDAY* 4. | | |
| 0 | 9 43 16 ·25 | N. 8 24 27 ·5 | 9 |
| 1 | 9 45 12 ·79 | 8 14 30 ·0 | 9 |
| 2 | 9 47 9 ·29 | 8 4 30 ·1 | 10 |
| 3 | 9 49 5 ·75 | 7 54 27 ·9 | 10 |
| 4 | 9 51 2 ·18 | 7 44 23 ·4 | 10 |
| 5 | 9 52 58 ·57 | 7 34 16 ·7 | 10 |
| 6 | 9 54 54 ·94 | 7 24 7 ·7 | 10 |
| 7 | 9 56 51 ·27 | 7 13 56 ·5 | 10 |
| 8 | 9 58 47 ·58 | 7 3 43 ·2 | 10 |
| 9 | 10 0 43 ·86 | 6 53 27 ·8 | 10 |
| 10 | 10 2 40 ·12 | 6 43 10 ·3 | 10 |
| 11 | 10 4 36 ·36 | 6 32 50 ·9 | 10 |
| 12 | 10 6 32 ·58 | 6 22 29 ·4 | 10 |
| 13 | 10 8 28 ·79 | 6 12 6 ·0 | 10 |
| 14 | 10 10 24 ·98 | 6 1 40 ·7 | 10 |
| 15 | 10 12 21 ·16 | 5 51 13 ·6 | 10 |
| 16 | 10 14 17 ·34 | 5 40 44 ·7 | 10 |
| 17 | 10 16 13 ·51 | 5 30 14 ·0 | 10 |
| 18 | 10 18 9 ·67 | 5 19 41 ·5 | 10 |
| 19 | 10 20 5 ·83 | 5 9 7 ·4 | 10 |
| 20 | 10 22 1 ·99 | 4 58 31 ·6 | 10 |
| 21 | 10 23 58 ·15 | 4 47 54 ·2 | 10 |
| 22 | 10 25 54 ·32 | 4 37 15 ·3 | 10 |
| 23 | 10 27 50 ·50 | 4 26 34 ·8 | 10 |
| 24 | 10 29 46 ·68 | N. 4 15 52 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *TUESDAY* 5. | | | | *THURSDAY* 7. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 10 29 46·68 | N.4 15 52·9 | 107·23 | 0 | 12 3 48·74 | S. 4 32 21·2 | 109·98 |
| 10 31 42·88 | 4 5 9·5 | 107·45 | 1 | 12 5 48·81 | 4 43 21·1 | 109·85 |
| 10 33 39·10 | 3 54 24·8 | 107·70 | 2 | 12 7 49·04 | 4 54 20·2 | 109·72 |
| 10 35 35·33 | 3 43 38·6 | 107·90 | 3 | 12 9 49·42 | 5 5 18·5 | 109·55 |
| 10 37 31·59 | 3 32 51·2 | 108·12 | 4 | 12 11 49·96 | 5 16 15·8 | 109·38 |
| 10 39 27·86 | 3 22 2·5 | 108·32 | 5 | 12 13 50·67 | 5 27 12·1 | 109·22 |
| 10 41 24·17 | 3 11 12·6 | 108·52 | 6 | 12 15 51·54 | 5 38 7·4 | 109·03 |
| 10 43 20·50 | 3 0 21·5 | 108·72 | 7 | 12 17 52·58 | 5 49 1·6 | 108·85 |
| 10 45 16·86 | 2 49 29·2 | 108·88 | 8 | 12 19 53·79 | 5 59 54·7 | 108·67 |
| 10 47 13·26 | 2 38 35·9 | 109·07 | 9 | 12 21 55·18 | 6 10 46·7 | 108·43 |
| 10 49 9·69 | 2 27 41·5 | 109·23 | 10 | 12 23 56·74 | 6 21 37·3 | 108·23 |
| 10 51 6·16 | 2 16 46·1 | 109·40 | 11 | 12 25 58·49 | 6 32 26·7 | 108·02 |
| 10 53 2·67 | 2 5 49·7 | 109·55 | 12 | 12 28 0·42 | 6 43 14·8 | 107·78 |
| 10 54 59·23 | 1 54 52·4 | 109·70 | 13 | 12 30 2·54 | 6 54 1·5 | 107·53 |
| 10 56 55·83 | 1 43 54·2 | 109·83 | 14 | 12 32 4·84 | 7 4 46·7 | 107·28 |
| 10 58 52·48 | 1 32 55·2 | 109·97 | 15 | 12 34 7·34 | 7 15 30·4 | 107·03 |
| 11 0 49·19 | 1 21 55·4 | 110·08 | 16 | 12 36 10·04 | 7 26 12·6 | 106·75 |
| 11 2 45·95 | 1 10 54·9 | 110·20 | 17 | 12 38 12·93 | 7 36 53·1 | 106·48 |
| 11 4 42·77 | 0 59 53·7 | 110·32 | 18 | 12 40 16·02 | 7 47 32·0 | 106·20 |
| 11 6 39·65 | 0 48 51·8 | 110·42 | 19 | 12 42 19·33 | 7 58 9·2 | 105·90 |
| 11 8 36·59 | 0 37 49·3 | 110·52 | 20 | 12 44 22·84 | 8 8 44·6 | 105·60 |
| 11 10 33·60 | 0 26 46·2 | 110·60 | 21 | 12 46 26·56 | 8 19 18·2 | 105·28 |
| 11 12 30·68 | 0 15 42·6 | 110·67 | 22 | 12 48 30·49 | 8 29 49·9 | 104·95 |
| 11 14 27·83 | N.0 4 38·6 | 110·75 | 23 | 12 50 34·64 | S. 8 40 19·6 | 104·63 |
| *WEDNESDAY* 6. | | | | *FRIDAY* 8. | | |
| 11 16 25·05 | S.0 6 25·9 | 110·82 | 0 | 12 52 39·01 | S. 8 50 47·4 | 104·28 |
| 11 18 22·36 | 0 17 30·8 | 110·85 | 1 | 12 54 43·60 | 9 1 13·1 | 103·93 |
| 11 20 19·74 | 0 28 35·9 | 110·92 | 2 | 12 56 48·42 | 9 11 36·7 | 103·57 |
| 11 22 17·21 | 0 39 41·4 | 110·97 | 3 | 12 58 53·46 | 9 21 58·1 | 103·20 |
| 11 24 14·77 | 0 50 47·2 | 110·98 | 4 | 13 0 58·74 | 9 32 17·3 | 102·82 |
| 11 26 12·42 | 1 1 53·1 | 111·02 | 5 | 13 3 4·24 | 9 42 34·2 | 102·43 |
| 11 28 10·16 | 1 12 59·2 | 111·03 | 6 | 13 5 9·99 | 9 52 48·8 | 102·02 |
| 11 30 7·99 | 1 24 5·4 | 111·03 | 7 | 13 7 15·97 | 10 3 0·9 | 101·62 |
| 11 32 5·93 | 1 35 11·6 | 111·05 | 8 | 13 9 22·20 | 10 13 10·6 | 101·20 |
| 11 34 3·97 | 1 46 17·9 | 111·03 | 9 | 13 11 28·67 | 10 23 17·8 | 100·77 |
| 11 36 2·11 | 1 57 24·1 | 111·03 | 10 | 13 13 35·38 | 10 33 22·4 | 100·32 |
| 11 38 0·36 | 2 8 30·3 | 111·00 | 11 | 13 15 42·35 | 10 43 24·3 | 99·88 |
| 11 39 58·71 | 2 19 36·3 | 110·98 | 12 | 13 17 49·56 | 10 53 23·6 | 99·42 |
| 11 41 57·18 | 2 30 42·2 | 110·93 | 13 | 13 19 57·03 | 11 3 20·1 | 98·93 |
| 11 43 55·77 | 2 41 47·8 | 110·90 | 14 | 13 22 4·76 | 11 13 13·7 | 98·47 |
| 11 45 54·48 | 2 52 53·2 | 110·83 | 15 | 13 24 12·75 | 11 23 4·5 | 97·97 |
| 11 47 53·31 | 3 3 58·2 | 110·78 | 16 | 13 26 21·01 | 11 32 52·3 | 97·47 |
| 11 49 52·27 | 3 15 2·9 | 110·72 | 17 | 13 28 29·53 | 11 42 37·1 | 96·97 |
| 11 51 51·35 | 3 26 7·2 | 110·63 | 18 | 13 30 38·31 | 11 52 18·9 | 96·43 |
| 11 53 50·57 | 3 37 11·0 | 110·55 | 19 | 13 32 47·37 | 12 1 57·5 | 95·90 |
| 11 55 49·92 | 3 48 14·3 | 110·45 | 20 | 13 34 56·69 | 12 11 32·9 | 95·35 |
| 11 57 49·41 | 3 59 17·0 | 110·35 | 21 | 13 37 6·30 | 12 21 5·0 | 94·82 |
| 11 59 49·04 | 4 10 19·1 | 110·23 | 22 | 13 39 16·17 | 12 30 33·9 | 94·23 |
| 12 1 48·82 | 4 21 20·5 | 110·12 | 23 | 13 41 26·33 | 12 39 59·3 | 93·67 |
| 12 3 48·74 | S. 4 32 21·2 | | 24 | 13 43 36·77 | S. 12 49 21·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SATURDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 13 43 36 ·77 | S. 12 49 21 ·3 | 93 ·08 |
| 1 | 13 45 47 ·49 | 12 58 39 ·8 | 92 ·48 |
| 2 | 13 47 58 ·50 | 13 7 54 ·7 | 91 ·87 |
| 3 | 13 50 9 ·79 | 13 17 5 ·9 | 91 ·27 |
| 4 | 13 52 21 ·38 | 13 26 13 ·5 | 90 ·63 |
| 5 | 13 54 33 ·26 | 13 35 17 ·3 | 89 ·98 |
| 6 | 13 56 45 ·42 | 13 44 17 ·2 | 89 ·33 |
| 7 | 13 58 57 ·89 | 13 53 13 ·2 | 88 ·68 |
| 8 | 14 1 10 ·64 | 14 2 5 ·3 | 88 ·02 |
| 9 | 14 3 23 ·70 | 14 10 53 ·4 | 87 ·32 |
| 10 | 14 5 37 ·05 | 14 19 37 ·3 | 86 ·63 |
| 11 | 14 7 50 ·71 | 14 28 17 ·1 | 85 ·92 |
| 12 | 14 10 4 ·67 | 14 36 52 ·6 | 85 ·20 |
| 13 | 14 12 18 ·93 | 14 45 23 ·8 | 84 ·48 |
| 14 | 14 14 33 ·50 | 14 53 50 ·7 | 83 ·75 |
| 15 | 14 16 48 ·37 | 15 2 13 ·2 | 82 ·98 |
| 16 | 14 19 3 ·55 | 15 10 31 ·1 | 82 ·23 |
| 17 | 14 21 19 ·04 | 15 18 44 ·5 | 81 ·45 |
| 18 | 14 23 34 ·84 | 15 26 53 ·2 | 80 ·67 |
| 19 | 14 25 50 ·96 | 15 34 57 ·2 | 79 ·88 |
| 20 | 14 28 7 ·38 | 15 42 56 ·5 | 79 ·07 |
| 21 | 14 30 24 ·11 | 15 50 50 ·9 | 78 ·25 |
| 22 | 14 32 41 ·16 | 15 58 40 ·4 | 77 ·43 |
| 23 | 14 34 58 ·52 | S. 16 6 25 ·0 | 76 ·58 |
| | *SUNDAY* 10. | | |
| 0 | 14 37 16 ·20 | S. 16 14 4 ·5 | 75 ·73 |
| 1 | 14 39 34 ·19 | 16 21 38 ·9 | 74 ·87 |
| 2 | 14 41 52 ·50 | 16 29 8 ·1 | 74 ·00 |
| 3 | 14 44 11 ·13 | 16 36 32 ·1 | 73 ·12 |
| 4 | 14 46 30 ·07 | 16 43 50 ·8 | 72 ·22 |
| 5 | 14 48 49 ·33 | 16 51 4 ·1 | 71 ·30 |
| 6 | 14 51 8 ·90 | 16 58 11 ·9 | 70 ·38 |
| 7 | 14 53 28 ·79 | 17 5 14 ·2 | 69 ·45 |
| 8 | 14 55 49 ·00 | 17 12 10 ·9 | 68 ·52 |
| 9 | 14 58 9 ·52 | 17 19 2 ·0 | 67 ·57 |
| 10 | 15 0 30 ·35 | 17 25 47 ·4 | 66 ·58 |
| 11 | 15 2 51 ·51 | 17 32 26 ·9 | 65 ·62 |
| 12 | 15 5 12 ·97 | 17 39 0 ·6 | 64 ·63 |
| 13 | 15 7 34 ·76 | 17 45 28 ·4 | 63 ·63 |
| 14 | 15 9 56 ·85 | 17 51 50 ·2 | 62 ·62 |
| 15 | 15 12 19 ·26 | 17 58 5 ·9 | 61 ·60 |
| 16 | 15 14 41 ·98 | 18 4 15 ·5 | 60 ·57 |
| 17 | 15 17 5 ·02 | 18 10 18 ·9 | 59 ·52 |
| 18 | 15 19 28 ·36 | 18 16 16 ·0 | 58 ·47 |
| 19 | 15 21 52 ·01 | 18 22 6 ·8 | 57 ·40 |
| 20 | 15 24 15 ·96 | 18 27 51 ·2 | 56 ·32 |
| 21 | 15 26 40 ·22 | 18 33 29 ·1 | 55 ·25 |
| 22 | 15 29 4 ·79 | 18 39 0 ·6 | 54 ·13 |
| 23 | 15 31 29 ·65 | 18 44 25 ·4 | 53 ·03 |
| 24 | 15 33 54 ·82 | S. 18 49 43 ·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 11. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 33 54 ·82 | S. 18 49 43 ·6 | 51 ·88 |
| 1 | 15 36 20 ·29 | 18 54 55 ·1 | 50 ·78 |
| 2 | 15 38 46 ·05 | 18 59 59 ·8 | 49 ·63 |
| 3 | 15 41 12 ·11 | 19 4 57 ·6 | 48 ·48 |
| 4 | 15 43 38 ·46 | 19 9 48 ·5 | 47 ·33 |
| 5 | 15 46 5 ·10 | 19 14 32 ·5 | 46 ·17 |
| 6 | 15 48 32 ·03 | 19 19 9 ·5 | 44 ·97 |
| 7 | 15 50 59 ·24 | 19 23 39 ·3 | 43 ·78 |
| 8 | 15 53 26 ·74 | 19 28 2 ·0 | 42 ·58 |
| 9 | 15 55 54 ·51 | 19 32 17 ·5 | 41 ·38 |
| 10 | 15 58 22 ·56 | 19 36 25 ·8 | 40 ·18 |
| 11 | 16 0 50 ·89 | 19 40 26 ·7 | 38 ·93 |
| 12 | 16 3 19 ·48 | 19 44 20 ·3 | 37 ·68 |
| 13 | 16 5 48 ·34 | 19 48 6 ·4 | 36 ·45 |
| 14 | 16 8 17 ·47 | 19 51 45 ·1 | 35 ·18 |
| 15 | 16 10 46 ·86 | 19 55 16 ·2 | 33 ·92 |
| 16 | 16 13 16 ·50 | 19 58 39 ·7 | 32 ·63 |
| 17 | 16 15 46 ·40 | 20 1 55 ·5 | 31 ·37 |
| 18 | 16 18 16 ·55 | 20 5 3 ·7 | 30 ·07 |
| 19 | 16 20 46 ·94 | 20 8 4 ·1 | 28 ·78 |
| 20 | 16 23 17 ·57 | 20 10 56 ·6 | 27 ·47 |
| 21 | 16 25 48 ·44 | 20 13 41 ·4 | 26 ·13 |
| 22 | 16 28 19 ·54 | 20 16 18 ·2 | 24 ·82 |
| 23 | 16 30 50 ·87 | S. 20 18 47 ·1 | 23 ·48 |
| | *TUESDAY* 12. | | |
| 0 | 16 33 22 ·43 | S. 20 21 8 ·0 | 22 ·15 |
| 1 | 16 35 54 ·21 | 20 23 20 ·9 | 20 ·78 |
| 2 | 16 38 26 ·20 | 20 25 25 ·6 | 19 ·45 |
| 3 | 16 40 58 ·40 | 20 27 22 ·3 | 18 ·07 |
| 4 | 16 43 30 ·80 | 20 29 10 ·7 | 16 ·72 |
| 5 | 16 46 3 ·41 | 20 30 51 ·0 | 15 ·33 |
| 6 | 16 48 36 ·21 | 20 32 23 ·0 | 13 ·95 |
| 7 | 16 51 9 ·21 | 20 33 46 ·7 | 12 ·57 |
| 8 | 16 53 42 ·39 | 20 35 2 ·1 | 11 ·18 |
| 9 | 16 56 15 ·75 | 20 36 9 ·2 | 9 ·78 |
| 10 | 16 58 49 ·28 | 20 37 7 ·9 | 8 ·37 |
| 11 | 17 1 22 ·99 | 20 37 58 ·1 | 6 ·97 |
| 12 | 17 3 56 ·86 | 20 38 39 ·9 | 5 ·55 |
| 13 | 17 6 30 ·89 | 20 39 13 ·2 | 4 ·13 |
| 14 | 17 9 5 ·07 | 20 39 38 ·0 | 2 ·72 |
| 15 | 17 11 39 ·40 | 20 39 54 ·3 | 1 ·28 |
| 16 | 17 14 13 ·88 | 20 40 2 ·0 | 0 ·15 |
| 17 | 17 16 48 ·49 | 20 40 1 ·1 | 1 ·58 |
| 18 | 17 19 23 ·22 | 20 39 51 ·6 | 3 ·02 |
| 19 | 17 21 58 ·09 | 20 39 33 ·5 | 4 ·47 |
| 20 | 17 24 33 ·07 | 20 39 6 ·7 | 5 ·90 |
| 21 | 17 27 8 ·16 | 20 38 31 ·3 | 7 ·35 |
| 22 | 17 29 43 ·36 | 20 37 47 ·2 | 8 ·82 |
| 23 | 17 32 18 ·66 | 20 36 54 ·3 | 10 ·25 |
| 24 | 17 34 54 ·06 | S. 20 35 52 ·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *WEDNESDAY* 13. | | | | *FRIDAY* 15. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 34 54 ·06 | S. 20 35 52 ·8 | 11 ·72 | 0 | 19 39 4 ·20 | S. 16 59 14 ·4 | 77 ·82 |
| 37 29 ·54 | 20 34 42 ·5 | 13 ·17 | 1 | 19 41 36 ·92 | 16 51 27 ·5 | 79 ·02 |
| 40 5 ·11 | 20 33 23 ·5 | 14 ·63 | 2 | 19 44 9 ·47 | 16 43 33 ·4 | 80 ·18 |
| 42 40 ·75 | 20 31 55 ·7 | 16 ·08 | 3 | 19 46 41 ·83 | 16 35 32 ·3 | 81 ·33 |
| 45 16 ·46 | 20 30 19 ·2 | 17 ·53 | 4 | 19 49 14 ·00 | 16 27 24 ·3 | 82 ·50 |
| 47 52 ·23 | 20 28 34 ·0 | 19 ·00 | 5 | 19 51 45 ·98 | 16 19 9 ·3 | 83 ·63 |
| 50 28 ·06 | 20 26 40 ·0 | 20 ·45 | 6 | 19 54 17 ·76 | 16 10 47 ·5 | 84 ·75 |
| 53 3 ·94 | 20 24 37 ·3 | 21 ·92 | 7 | 19 56 49 ·35 | 16 2 19 ·0 | 85 ·88 |
| 55 39 ·87 | 20 22 25 ·8 | 23 ·37 | 8 | 19 59 20 ·74 | 15 53 43 ·7 | 86 ·97 |
| 58 15 ·83 | 20 20 5 ·6 | 24 ·82 | 9 | 20 1 51 ·92 | 15 45 1 ·9 | 88 ·05 |
| 0 51 ·82 | 20 17 36 ·7 | 26 ·28 | 10 | 20 4 22 ·89 | 15 36 13 ·6 | 89 ·13 |
| 3 27 ·84 | 20 14 59 ·0 | 27 ·73 | 11 | 20 6 53 ·66 | 15 27 18 ·8 | 90 ·18 |
| 6 3 ·88 | 20 12 12 ·6 | 29 ·18 | 12 | 20 9 24 ·21 | 15 18 17 ·7 | 91 ·23 |
| 8 39 ·94 | 20 9 17 ·5 | 30 ·62 | 13 | 20 11 54 ·55 | 15 9 10 ·3 | 92 ·27 |
| 11 16 ·00 | 20 6 13 ·8 | 32 ·08 | 14 | 20 14 24 ·67 | 14 59 56 ·7 | 93 ·28 |
| 13 52 ·06 | 20 3 1 ·3 | 33 ·52 | 15 | 20 16 54 ·57 | 14 50 37 ·0 | 94 ·28 |
| 16 28 ·11 | 19 59 40 ·2 | 34 ·95 | 16 | 20 19 24 ·25 | 14 41 11 ·3 | 95 ·27 |
| 19 4 ·15 | 19 56 10 ·5 | 36 ·40 | 17 | 20 21 53 ·71 | 14 31 39 ·7 | 96 ·25 |
| 21 40 ·18 | 19 52 32 ·1 | 37 ·82 | 18 | 20 24 22 ·94 | 14 22 2 ·2 | 97 ·22 |
| 24 16 ·18 | 19 48 45 ·2 | 39 ·27 | 19 | 20 26 51 ·94 | 14 12 18 ·9 | 98 ·15 |
| 26 52 ·15 | 19 44 49 ·6 | 40 ·68 | 20 | 20 29 20 ·72 | 14 2 30 ·0 | 99 ·08 |
| 29 28 ·09 | 19 40 45 ·5 | 42 ·12 | 21 | 20 31 49 ·26 | 13 52 35 ·5 | 99 ·98 |
| 32 3 ·98 | 19 36 32 ·8 | 43 ·52 | 22 | 20 34 17 ·57 | 13 42 35 ·6 | 100 ·90 |
| 34 39 ·83 | S. 19 32 11 ·7 | 44 ·95 | 23 | 20 36 45 ·65 | S. 13 32 30 ·2 | 101 ·78 |
| *THURSDAY* 14. | | | | *SATURDAY* 16. | | |
| 37 15 ·62 | S. 19 27 42 ·0 | 46 ·35 | 0 | 20 39 13 ·49 | S. 13 22 19 ·5 | 102 ·65 |
| 39 51 ·35 | 19 23 3 ·9 | 47 ·77 | 1 | 20 41 41 ·10 | 13 12 3 ·6 | 103 ·50 |
| 42 27 ·02 | 19 18 17 ·3 | 49 ·15 | 2 | 20 44 8 ·47 | 13 1 42 ·6 | 104 ·33 |
| 45 2 ·61 | 19 13 22 ·4 | 50 ·53 | 3 | 20 46 35 ·59 | 12 51 16 ·6 | 105 ·17 |
| 47 38 ·13 | 19 8 19 ·2 | 51 ·93 | 4 | 20 49 2 ·48 | 12 40 45 ·6 | 105 ·97 |
| 50 13 ·56 | 19 3 7 ·6 | 53 ·30 | 5 | 20 51 29 ·13 | 12 30 9 ·8 | 106 ·77 |
| 52 48 ·91 | 18 57 47 ·8 | 54 ·67 | 6 | 20 53 55 ·54 | 12 19 29 ·2 | 107 ·53 |
| 55 24 ·16 | 18 52 19 ·8 | 56 ·03 | 7 | 20 56 21 ·71 | 12 8 44 ·0 | 108 ·30 |
| 57 59 ·31 | 18 46 43 ·6 | 57 ·40 | 8 | 20 58 47 ·63 | 11 57 54 ·2 | 109 ·03 |
| 0 34 ·36 | 18 40 59 ·2 | 58 ·73 | 9 | 21 1 13 ·31 | 11 47 0 ·0 | 109 ·77 |
| 3 9 ·30 | 18 35 6 ·8 | 60 ·08 | 10 | 21 3 38 ·76 | 11 36 1 ·4 | 110 ·48 |
| 5 44 ·12 | 18 29 6 ·3 | 61 ·40 | 11 | 21 6 3 ·95 | 11 24 58 ·5 | 111 ·18 |
| 8 18 ·83 | 18 22 57 ·9 | 62 ·73 | 12 | 21 8 28 ·90 | 11 13 51 ·4 | 111 ·87 |
| 10 53 ·41 | 18 16 41 ·5 | 64 ·03 | 13 | 21 10 53 ·61 | 11 2 40 ·2 | 112 ·52 |
| 13 27 ·86 | 18 10 17 ·3 | 65 ·35 | 14 | 21 13 18 ·08 | 10 51 25 ·1 | 113 ·17 |
| 16 2 ·17 | 18 3 45 ·2 | 66 ·65 | 15 | 21 15 42 ·30 | 10 40 6 ·1 | 113 ·82 |
| 18 36 ·35 | 17 57 5 ·3 | 67 ·92 | 16 | 21 18 6 ·28 | 10 28 43 ·2 | 114 ·42 |
| 21 10 ·38 | 17 50 17 ·8 | 69 ·20 | 17 | 21 20 30 ·02 | 10 17 16 ·7 | 115 ·02 |
| 23 44 ·26 | 17 43 22 ·6 | 70 ·47 | 18 | 21 22 53 ·52 | 10 5 46 ·6 | 115 ·62 |
| 26 17 ·99 | 17 36 19 ·8 | 71 ·72 | 19 | 21 25 16 ·77 | 9 54 12 ·9 | 116 ·17 |
| 28 51 ·57 | 17 29 9 ·5 | 72 ·95 | 20 | 21 27 39 ·78 | 9 42 35 ·9 | 116 ·73 |
| 31 24 ·98 | 17 21 51 ·8 | 74 ·20 | 21 | 21 30 2 ·56 | 9 30 55 ·5 | 117 ·25 |
| 33 58 ·22 | 17 14 26 ·6 | 75 ·40 | 22 | 21 32 25 ·09 | 9 19 12 ·0 | 117 ·78 |
| 36 31 ·30 | 17 6 54 ·2 | 76 ·63 | 23 | 21 34 47 ·38 | 9 7 25 ·3 | 118 ·28 |
| 39 4 ·20 | S. 16 59 14 ·4 | | 24 | 21 37 9 ·44 | S. 8 55 35 ·6 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. |
|---|---|---|---|---|---|---|
| | *SUNDAY* 17. | | | | *TUESDAY* 19. | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ |
| 0 | 21 37 9 ·44 | S. 8 55 35 ·6 | 118 ·77 | 0 | 23 26 37 ·69 | N. 1 0 51 ·4 |
| 1 | 21 39 31 ·26 | 8 43 43 ·0 | 119 ·25 | 1 | 23 28 50 ·14 | 1 13 17 ·0 |
| 2 | 21 41 52 ·84 | 8 31 47 ·5 | 119 ·68 | 2 | 23 31 2 ·44 | 1 25 41 ·3 |
| 3 | 21 44 14 ·18 | 8 19 49 ·4 | 120 ·15 | 3 | 23 33 14 ·61 | 1 38 4 ·2 |
| 4 | 21 46 35 ·29 | 8 7 48 ·5 | 120 ·55 | 4 | 23 35 26 ·65 | 1 50 25 ·6 |
| 5 | 21 48 56 ·17 | 7 55 45 ·2 | 120 ·97 | 5 | 23 37 38 ·55 | 2 2 45 ·5 |
| 6 | 21 51 16 ·81 | 7 43 39 ·4 | 121 ·35 | 6 | 23 39 50 ·32 | 2 15 3 ·7 |
| 7 | 21 53 37 ·23 | 7 31 31 ·3 | 121 ·73 | 7 | 23 42 1 ·96 | 2 27 20 ·3 |
| 8 | 21 55 57 ·41 | 7 19 20 ·9 | 122 ·08 | 8 | 23 44 13 ·48 | 2 39 35 ·1 |
| 9 | 21 58 17 ·37 | 7 7 8 ·4 | 122 ·43 | 9 | 23 46 24 ·87 | 2 51 48 ·0 |
| 10 | 22 0 37 ·10 | 6 54 53 ·8 | 122 ·77 | 10 | 23 48 36 ·14 | 3 3 59 ·1 |
| 11 | 22 2 56 ·60 | 6 42 37 ·2 | 123 ·07 | 11 | 23 50 47 ·29 | 3 16 8 ·2 |
| 12 | 22 5 15 ·89 | 6 30 18 ·8 | 123 ·37 | 12 | 23 52 58 ·33 | 3 28 15 ·2 |
| 13 | 22 7 34 ·95 | 6 17 58 ·6 | 123 ·65 | 13 | 23 55 9 ·25 | 3 40 20 ·2 |
| 14 | 22 9 53 ·79 | 6 5 36 ·7 | 123 ·90 | 14 | 23 57 20 ·06 | 3 52 23 ·0 |
| 15 | 22 12 12 ·42 | 5 53 13 ·3 | 124 ·17 | 15 | 23 59 30 ·77 | 4 4 23 ·6 |
| 16 | 22 14 30 ·83 | 5 40 48 ·3 | 124 ·40 | 16 | 0 1 41 ·37 | 4 16 21 ·9 |
| 17 | 22 16 49 ·02 | 5 28 21 ·9 | 124 ·62 | 17 | 0 3 51 ·86 | 4 28 17 ·8 |
| 18 | 22 19 7 ·00 | 5 15 54 ·2 | 124 ·80 | 18 | 0 6 2 ·25 | 4 40 11 ·3 |
| 19 | 22 21 24 ·77 | 5 3 25 ·4 | 125 ·02 | 19 | 0 8 12 ·54 | 4 52 2 ·4 |
| 20 | 22 23 42 ·32 | 4 50 55 ·3 | 125 ·17 | 20 | 0 10 22 ·74 | 5 3 50 ·9 |
| 21 | 22 25 59 ·67 | 4 38 24 ·3 | 125 ·35 | 21 | 0 12 32 ·84 | 5 15 36 ·9 |
| 22 | 22 28 16 ·82 | 4 25 52 ·2 | 125 ·47 | 22 | 0 14 42 ·84 | 5 27 20 ·2 |
| 23 | 22 30 33 ·76 | S. 4 13 19 ·4 | 125 ·62 | 23 | 0 16 52 ·76 | N. 5 39 0 ·8 |
| | *MONDAY* 18. | | | | *WEDNESDAY* 20. | |
| 0 | 22 32 50 ·50 | S. 4 0 45 ·7 | 125 ·72 | 0 | 0 19 2 ·59 | N. 5 50 38 ·6 |
| 1 | 22 35 7 ·04 | 3 48 11 ·4 | 125 ·82 | 1 | 0 21 12 ·33 | 6 2 13 ·6 |
| 2 | 22 37 23 ·39 | 3 35 36 ·5 | 125 ·92 | 2 | 0 23 22 ·00 | 6 13 45 ·7 |
| 3 | 22 39 39 ·54 | 3 23 1 ·0 | 125 ·97 | 3 | 0 25 31 ·58 | 6 25 14 ·9 |
| 4 | 22 41 55 ·49 | 3 10 25 ·2 | 126 ·03 | 4 | 0 27 41 ·08 | 6 36 41 ·1 |
| 5 | 22 44 11 ·26 | 2 57 49 ·0 | 126 ·07 | 5 | 0 29 50 ·51 | 6 48 4 ·2 |
| 6 | 22 46 26 ·84 | 2 45 12 ·6 | 126 ·10 | 6 | 0 31 59 ·86 | 6 59 24 ·3 |
| 7 | 22 48 42 ·23 | 2 32 36 ·0 | 126 ·12 | 7 | 0 34 9 ·13 | 7 10 41 ·2 |
| 8 | 22 50 57 ·44 | 2 19 59 ·3 | 126 ·12 | 8 | 0 36 18 ·34 | 7 21 54 ·9 |
| 9 | 22 53 12 ·47 | 2 7 22 ·6 | 126 ·08 | 9 | 0 38 27 ·48 | 7 33 5 ·3 |
| 10 | 22 55 27 ·31 | 1 54 46 ·1 | 126 ·08 | 10 | 0 40 36 ·55 | 7 44 12 ·5 |
| 11 | 22 57 41 ·98 | 1 42 9 ·6 | 126 ·02 | 11 | 0 42 45 ·56 | 7 55 16 ·3 |
| 12 | 22 59 56 ·48 | 1 29 33 ·5 | 125 ·97 | 12 | 0 44 54 ·51 | 8 6 16 ·6 |
| 13 | 23 2 10 ·80 | 1 16 57 ·7 | 125 ·90 | 13 | 0 47 3 ·40 | 8 17 13 ·5 |
| 14 | 23 4 24 ·96 | 1 4 22 ·3 | 125 ·82 | 14 | 0 49 12 ·22 | 8 28 6 ·9 |
| 15 | 23 6 38 ·94 | 0 51 47 ·4 | 125 ·72 | 15 | 0 51 21 ·00 | 8 38 56 ·8 |
| 16 | 23 8 52 ·77 | 0 39 13 ·1 | 125 ·62 | 16 | 0 53 29 ·71 | 8 49 43 ·0 |
| 17 | 23 11 6 ·42 | 0 26 39 ·4 | 125 ·48 | 17 | 0 55 38 ·38 | 9 0 25 ·6 |
| 18 | 23 13 19 ·92 | 0 14 6 ·5 | 125 ·37 | 18 | 0 57 46 ·99 | 9 11 4 ·6 |
| 19 | 23 15 33 ·26 | S. 0 1 34 ·3 | 125 ·20 | 19 | 0 59 55 ·56 | 9 21 39 ·7 |
| 20 | 23 17 46 ·45 | N. 0 10 56 ·9 | 125 ·05 | 20 | 1 2 4 ·08 | 9 32 11 ·1 |
| 21 | 23 19 59 ·48 | 0 23 27 ·2 | 124 ·87 | 21 | 1 4 12 ·55 | 9 42 38 ·7 |
| 22 | 23 22 12 ·37 | 0 35 56 ·4 | 124 ·68 | 22 | 1 6 20 ·99 | 9 53 2 ·4 |
| 23 | 23 24 25 ·10 | 0 48 24 ·5 | 124 ·48 | 23 | 1 8 29 ·37 | 10 3 22 ·2 |
| 24 | 23 26 37 ·69 | N. 1 0 51 ·4 | | 24 | 1 10 37 ·72 | N. 10 13 38 ·0 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *THURSDAY* 21. | | | | *SATURDAY* 23. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 10 37 ·72 | N.10 13 38 ·0 | 101 ·97 | 0 | 2 52 57 ·52 | N.16 57 9 ·7 | 63 ·52 |
| 12 46 ·03 | 10 23 49 ·8 | 101 ·30 | 1 | 2 55 5 ·36 | 17 3 30 ·8 | 62 ·62 |
| 14 54 ·31 | 10 33 57 ·6 | 100 ·62 | 2 | 2 57 13 ·20 | 17 9 46 ·5 | 61 ·72 |
| 17 2 ·55 | 10 44 1 ·3 | 99 ·93 | 3 | 2 59 21 ·05 | 17 15 56 ·8 | 60 ·82 |
| 19 10 ·76 | 10 54 0 ·9 | 99 ·23 | 4 | 3 1 28 ·90 | 17 22 1 ·7 | 59 ·88 |
| 21 18 ·93 | 11 3 56 ·3 | 98 ·53 | 5 | 3 3 36 ·76 | 17 28 1 ·0 | 58 ·98 |
| 23 27 ·08 | 11 13 47 ·5 | 97 ·83 | 6 | 3 5 44 ·62 | 17 33 54 ·9 | 58 ·05 |
| 25 35 ·19 | 11 23 34 ·5 | 97 ·12 | 7 | 3 7 52 ·48 | 17 39 43 ·2 | 57 ·15 |
| 27 43 ·28 | 11 33 17 ·2 | 96 ·40 | 8 | 3 10 0 ·35 | 17 45 26 ·1 | 56 ·22 |
| 29 51 ·35 | 11 42 55 ·6 | 95 ·68 | 9 | 3 12 8 ·22 | 17 51 3 ·4 | 55 ·28 |
| 31 59 ·39 | 11 52 29 ·7 | 94 ·95 | 10 | 3 14 16 ·10 | 17 56 35 ·1 | 54 ·37 |
| 34 7 ·40 | 12 1 59 ·4 | 94 ·20 | 11 | 3 16 23 ·98 | 18 2 1 ·3 | 53 ·43 |
| 36 15 ·40 | 12 11 24 ·6 | 93 ·47 | 12 | 3 18 31 ·87 | 18 7 21 ·9 | 52 ·50 |
| 38 23 ·38 | 12 20 45 ·4 | 92 ·72 | 13 | 3 20 39 ·76 | 18 12 36 ·9 | 51 ·57 |
| 40 31 ·33 | 12 30 1 ·7 | 91 ·95 | 14 | 3 22 47 ·65 | 18 17 46 ·3 | 50 ·63 |
| 42 39 ·27 | 12 39 13 ·4 | 91 ·22 | 15 | 3 24 55 ·55 | 18 22 50 ·1 | 49 ·68 |
| 44 47 ·19 | 12 48 20 ·7 | 90 ·43 | 16 | 3 27 3 ·44 | 18 27 48 ·2 | 48 ·75 |
| 46 55 ·10 | 12 57 23 ·3 | 89 ·67 | 17 | 3 29 11 ·34 | 18 32 40 ·7 | 47 ·82 |
| 49 2 ·99 | 13 6 21 ·3 | 88 ·88 | 18 | 3 31 19 ·24 | 18 37 27 ·6 | 46 ·87 |
| 51 10 ·87 | 13 15 14 ·6 | 88 ·12 | 19 | 3 33 27 ·14 | 18 42 8 ·8 | 45 ·92 |
| 53 18 ·74 | 13 24 3 ·3 | 87 ·32 | 20 | 3 35 35 ·05 | 18 46 44 ·3 | 44 ·97 |
| 55 26 ·59 | 13 32 47 ·2 | 86 ·53 | 21 | 3 37 42 ·95 | 18 51 14 ·1 | 44 ·03 |
| 57 34 ·44 | 13 41 26 ·4 | 85 ·73 | 22 | 3 39 50 ·85 | 18 55 38 ·3 | 43 ·07 |
| 59 42 ·28 | N.13 50 0 ·8 | 84 ·93 | 23 | 3 41 58 ·75 | N.18 59 56 ·7 | 42 ·12 |
| *FRIDAY* 22. | | | | *SUNDAY* 24. | | |
| 1 50 ·11 | N.13 58 30 ·4 | 84 ·13 | 0 | 3 44 6 ·64 | N.19 4 9 ·4 | 41 ·17 |
| 3 57 ·93 | 14 6 55 ·2 | 83 ·32 | 1 | 3 46 14 ·54 | 19 8 16 ·4 | 40 ·22 |
| 6 5 ·75 | 14 15 15 ·1 | 82 ·50 | 2 | 3 48 22 ·43 | 19 12 17 ·7 | 39 ·25 |
| 8 13 ·56 | 14 23 30 ·1 | 81 ·68 | 3 | 3 50 30 ·31 | 19 16 13 ·2 | 38 ·30 |
| 10 21 ·37 | 14 31 40 ·2 | 80 ·85 | 4 | 3 52 38 ·20 | 19 20 3 ·0 | 37 ·33 |
| 12 29 ·18 | 14 39 45 ·3 | 80 ·03 | 5 | 3 54 46 ·07 | 19 23 47 ·0 | 36 ·38 |
| 14 36 ·98 | 14 47 45 ·5 | 79 ·18 | 6 | 3 56 53 ·95 | 19 27 25 ·3 | 35 ·42 |
| 16 44 ·77 | 14 55 40 ·6 | 78 ·35 | 7 | 3 59 1 ·81 | 19 30 57 ·8 | 34 ·45 |
| 18 52 ·57 | 15 3 30 ·7 | 77 ·52 | 8 | 4 1 9 ·67 | 19 34 24 ·5 | 33 ·48 |
| 21 0 ·37 | 15 11 15 ·8 | 76 ·67 | 9 | 4 3 17 ·52 | 19 37 45 ·4 | 32 ·53 |
| 23 8 ·16 | 15 18 55 ·8 | 75 ·82 | 10 | 4 5 25 ·35 | 19 41 0 ·6 | 31 ·55 |
| 25 15 ·96 | 15 26 30 ·7 | 74 ·97 | 11 | 4 7 33 ·18 | 19 44 9 ·9 | 30 ·60 |
| 27 23 ·75 | 15 34 0 ·5 | 74 ·10 | 12 | 4 9 41 ·00 | 19 47 13 ·5 | 29 ·62 |
| 29 31 ·55 | 15 41 25 ·1 | 73 ·25 | 13 | 4 11 48 ·81 | 19 50 11 ·2 | 28 ·67 |
| 31 39 ·35 | 15 48 44 ·6 | 72 ·37 | 14 | 4 13 56 ·60 | 19 53 3 ·2 | 27 ·68 |
| 33 47 ·15 | 15 55 58 ·8 | 71 ·52 | 15 | 4 16 4 ·38 | 19 55 49 ·3 | 26 ·72 |
| 35 54 ·95 | 16 3 7 ·9 | 70 ·62 | 16 | 4 18 12 ·15 | 19 58 29 ·6 | 25 ·75 |
| 38 2 ·76 | 16 10 11 ·6 | 69 ·77 | 17 | 4 20 19 ·90 | 20 1 4 ·1 | 24 ·77 |
| 40 10 ·57 | 16 17 10 ·2 | 68 ·87 | 18 | 4 22 27 ·63 | 20 3 32 ·7 | 23 ·82 |
| 42 18 ·38 | 16 24 3 ·4 | 68 ·00 | 19 | 4 24 35 ·35 | 20 5 55 ·6 | 22 ·83 |
| 44 26 ·20 | 16 30 51 ·4 | 67 ·10 | 20 | 4 26 43 ·05 | 20 8 12 ·6 | 21 ·87 |
| 46 34 ·02 | 16 37 34 ·0 | 66 ·22 | 21 | 4 28 50 ·73 | 20 10 23 ·8 | 20 ·88 |
| 48 41 ·85 | 16 44 11 ·3 | 65 ·32 | 22 | 4 30 58 ·39 | 20 12 29 ·1 | 19 ·92 |
| 50 49 ·68 | 16 50 43 ·2 | 64 ·42 | 23 | 4 33 6 ·03 | 20 14 28 ·6 | 18 ·95 |
| 52 57 ·52 | N.16 57 9 ·7 | | 24 | 4 35 13 ·65 | N.20 16 22 ·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 35 13 ·65 | N.20 16 22 ·3 | 17 ·98 |
| 1 | 4 37 21 ·25 | 20 18 10 ·2 | 17 ·00 |
| 2 | 4 39 28 ·81 | 20 19 52 ·2 | 16 ·03 |
| 3 | 4 41 36 ·36 | 20 21 28 ·4 | 15 ·05 |
| 4 | 4 43 43 ·87 | 20 22 58 ·7 | 14 ·10 |
| 5 | 4 45 51 ·36 | 20 24 23 ·3 | 13 ·10 |
| 6 | 4 47 58 ·82 | 20 25 41 ·9 | 12 ·15 |
| 7 | 4 50 6 ·24 | 20 26 54 ·8 | 11 ·18 |
| 8 | 4 52 13 ·64 | 20 28 1 ·9 | 10 ·20 |
| 9 | 4 54 21 ·00 | 20 29 3 ·1 | 9 ·23 |
| 10 | 4 56 28 ·34 | 20 29 58 ·5 | 8 ·27 |
| 11 | 4 58 35 ·63 | 20 30 48 ·1 | 7 ·28 |
| 12 | 5 0 42 ·89 | 20 31 31 ·8 | 6 ·32 |
| 13 | 5 2 50 ·11 | 20 32 9 ·7 | 5 ·37 |
| 14 | 5 4 57 ·30 | 20 32 41 ·9 | 4 ·38 |
| 15 | 5 7 4 ·44 | 20 33 8 ·2 | 3 ·42 |
| 16 | 5 9 11 ·55 | 20 33 28 ·7 | 2 ·47 |
| 17 | 5 11 18 ·61 | 20 33 43 ·5 | 1 ·48 |
| 18 | 5 13 25 ·63 | 20 33 52 ·4 | 0 ·53 |
| 19 | 5 15 32 ·60 | 20 33 55 ·6 | 0 ·43 |
| 20 | 5 17 39 ·53 | 20 33 53 ·0 | 1 ·40 |
| 21 | 5 19 46 ·42 | 20 33 44 ·6 | 2 ·35 |
| 22 | 5 21 53 ·25 | 20 33 30 ·5 | 3 ·32 |
| 23 | 5 24 0 ·04 | N.20 33 10 ·6 | 4 ·27 |
| | *TUESDAY* 26. | | |
| 0 | 5 26 6 ·77 | N.20 32 45 ·0 | 5 ·23 |
| 1 | 5 28 13 ·46 | 20 32 13 ·6 | 6 ·18 |
| 2 | 5 30 20 ·09 | 20 31 36 ·5 | 7 ·13 |
| 3 | 5 32 26 ·67 | 20 30 53 ·7 | 8 ·08 |
| 4 | 5 34 33 ·19 | 20 30 5 ·2 | 9 ·03 |
| 5 | 5 36 39 ·66 | 20 29 11 ·0 | 10 ·00 |
| 6 | 5 38 46 ·07 | 20 28 11 ·0 | 10 ·93 |
| 7 | 5 40 52 ·43 | 20 27 5 ·4 | 11 ·88 |
| 8 | 5 42 58 ·73 | 20 25 54 ·1 | 12 ·82 |
| 9 | 5 45 4 ·96 | 20 24 37 ·2 | 13 ·77 |
| 10 | 5 47 11 ·14 | 20 23 14 ·6 | 14 ·70 |
| 11 | 5 49 17 ·25 | 20 21 46 ·4 | 15 ·65 |
| 12 | 5 51 23 ·30 | 20 20 12 ·5 | 16 ·58 |
| 13 | 5 53 29 ·29 | 20 18 33 ·0 | 17 ·52 |
| 14 | 5 55 35 ·21 | 20 16 47 ·9 | 18 ·43 |
| 15 | 5 57 41 ·07 | 20 14 57 ·3 | 19 ·38 |
| 16 | 5 59 46 ·85 | 20 13 1 ·0 | 20 ·30 |
| 17 | 6 1 52 ·57 | 20 10 59 ·2 | 21 ·23 |
| 18 | 6 3 58 ·22 | 20 8 51 ·8 | 22 ·15 |
| 19 | 6 6 3 ·80 | 20 6 38 ·9 | 23 ·07 |
| 20 | 6 8 9 ·31 | 20 4 20 ·5 | 24 ·00 |
| 21 | 6 10 14 ·75 | 20 1 56 ·5 | 24 ·92 |
| 22 | 6 12 20 ·11 | 19 59 27 ·0 | 25 ·82 |
| 23 | 6 14 25 ·40 | 19 56 52 ·1 | 26 ·73 |
| 24 | 6 16 30 ·62 | N.19 54 11 ·7 | |

| Hour. | Right Ascension. | Declination. | D |
|---|---|---|---|
| | *WEDNESDAY* 27. | | |
| | h m s | ° ′ ″ | |
| 0 | 6 16 30 ·62 | N.19 54 11 ·7 | |
| 1 | 6 18 35 ·76 | 19 51 25 ·8 | |
| 2 | 6 20 40 ·82 | 19 48 34 ·5 | |
| 3 | 6 22 45 ·81 | 19 45 37 ·8 | |
| 4 | 6 24 50 ·72 | 19 42 35 ·7 | |
| 5 | 6 26 55 ·55 | 19 39 28 ·2 | |
| 6 | 6 29 0 ·29 | 19 36 15 ·3 | |
| 7 | 6 31 4 ·96 | 19 32 57 ·0 | |
| 8 | 6 33 9 ·55 | 19 29 33 ·4 | |
| 9 | 6 35 14 ·06 | 19 26 4 ·5 | |
| 10 | 6 37 18 ·48 | 19 22 30 ·3 | |
| 11 | 6 39 22 ·82 | 19 18 50 ·9 | |
| 12 | 6 41 27 ·08 | 19 15 6 ·1 | |
| 13 | 6 43 31 ·25 | 19 11 16 ·1 | |
| 14 | 6 45 35 ·34 | 19 7 20 ·9 | |
| 15 | 6 47 39 ·34 | 19 3 20 ·5 | |
| 16 | 6 49 43 ·26 | 18 59 14 ·8 | |
| 17 | 6 51 47 ·09 | 18 55 4 ·1 | |
| 18 | 6 53 50 ·84 | 18 50 48 ·1 | |
| 19 | 6 55 54 ·49 | 18 46 27 ·1 | |
| 20 | 6 57 58 ·06 | 18 42 0 ·9 | |
| 21 | 7 0 1 ·54 | 18 37 29 ·7 | |
| 22 | 7 2 4 ·94 | 18 32 53 ·4 | |
| 23 | 7 4 8 ·24 | N.18 28 12 ·1 | |
| | *THURSDAY* 28. | | |
| 0 | 7 6 11 ·46 | N.18 23 25 ·7 | |
| 1 | 7 8 14 ·59 | 18 18 34 ·4 | |
| 2 | 7 10 17 ·62 | 18 13 38 ·0 | |
| 3 | 7 12 20 ·57 | 18 8 36 ·8 | |
| 4 | 7 14 23 ·42 | 18 3 30 ·6 | |
| 5 | 7 16 26 ·19 | 17 58 19 ·5 | |
| 6 | 7 18 28 ·87 | 17 53 3 ·5 | |
| 7 | 7 20 31 ·45 | 17 47 42 ·7 | |
| 8 | 7 22 33 ·94 | 17 42 17 ·0 | |
| 9 | 7 24 36 ·35 | 17 36 46 ·5 | |
| 10 | 7 26 38 ·66 | 17 31 11 ·2 | |
| 11 | 7 28 40 ·89 | 17 25 31 ·2 | |
| 12 | 7 30 43 ·02 | 17 19 46 ·4 | |
| 13 | 7 32 45 ·06 | 17 13 56 ·9 | |
| 14 | 7 34 47 ·01 | 17 8 2 ·7 | |
| 15 | 7 36 48 ·88 | 17 2 3 ·9 | |
| 16 | 7 38 50 ·65 | 16 56 0 ·4 | |
| 17 | 7 40 52 ·33 | 16 49 52 ·3 | |
| 18 | 7 42 53 ·92 | 16 43 39 ·6 | |
| 19 | 7 44 55 ·43 | 16 37 22 ·4 | |
| 20 | 7 46 56 ·84 | 16 31 0 ·6 | |
| 21 | 7 48 58 ·16 | 16 24 34 ·3 | |
| 22 | 7 50 59 ·40 | 16 18 3 ·6 | |
| 23 | 7 53 0 ·55 | 16 11 28 ·4 | |
| 24 | 7 55 1 ·61 | N.16 4 48 ·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 29. | | |
| | h m s | ° ′ ″ | ″ |
| | 7 55 1·61 | N.16 4 48·8 | 67·33 |
| | 7 57 2·58 | 15 58 4·8 | 68·05 |
| | 7 59 3·47 | 15 51 16·5 | 68·78 |
| | 8 1 4·26 | 15 44 23·8 | 69·50 |
| | 8 3 4·98 | 15 37 26·8 | 70·20 |
| | 8 5 5·60 | 15 30 25·6 | 70·92 |
| | 8 7 6·14 | 15 23 20·1 | 71·62 |
| | 8 9 6·60 | 15 16 10·4 | 72·33 |
| | 8 11 6·97 | 15 8 56·4 | 73·00 |
| | 8 13 7·26 | 15 1 38·4 | 73·70 |
| | 8 15 7·46 | 14 54 16·2 | 74·38 |
| | 8 17 7·59 | 14 46 49·9 | 75·07 |
| | 8 19 7·63 | 14 39 19·5 | 75·73 |
| | 8 21 7·59 | 14 31 45·1 | 76·42 |
| | 8 23 7·47 | 14 24 6·6 | 77·07 |
| | 8 25 7·28 | 14 16 24·2 | 77·72 |
| | 8 27 7·00 | 14 8 37·9 | 78·38 |
| | 8 29 6·65 | 14 0 47·6 | 79·02 |
| | 8 31 6·22 | 13 52 53·5 | 79·67 |
| | 8 33 5·72 | 13 44 55·5 | 80·32 |
| | 8 35 5·14 | 13 36 53·6 | 80·93 |
| | 8 37 4·49 | 13 28 48·0 | 81·55 |
| | 8 39 3·77 | 13 20 38·7 | 82·18 |
| | 8 41 2·97 | N.13 12 25·6 | 82·80 |
| | *SATURDAY* 30. | | |
| | 8 43 2·11 | N.13 4 8·8 | 83·40 |
| | 8 45 1·18 | 12 55 48·4 | 84·02 |
| | 8 47 0·18 | 12 47 24·3 | 84·60 |
| | 8 48 59·11 | 12 38 56·7 | 85·20 |
| | 8 50 57·98 | 12 30 25·5 | 85·78 |
| | 8 52 56·78 | 12 21 50·8 | 86·37 |
| | 8 54 55·52 | 12 13 12·6 | 86·93 |
| | 8 56 54·20 | 12 4 31·0 | 87·52 |
| | 8 58 52·82 | 11 55 45·9 | 88·07 |
| | 9 0 51·38 | 11 46 57·5 | 88·63 |
| | 9 2 49·88 | 11 38 5·7 | 89·18 |
| | 9 4 48·32 | 11 29 10·6 | 89·73 |
| | 9 6 46·71 | 11 20 12·2 | 90·27 |
| | 9 8 45·04 | 11 11 10·6 | 90·82 |
| | 9 10 43·33 | 11 2 5·7 | 91·33 |
| | 9 12 41·56 | 10 52 57·7 | 91·87 |
| | 9 14 39·74 | 10 43 46·5 | 92·37 |
| | 9 16 37·88 | 10 34 32·3 | 92·90 |
| | 9 18 35·96 | 10 25 14·9 | 93·38 |
| | 9 20 34·00 | 10 15 54·6 | 93·88 |
| | 9 22 32·00 | 10 6 31·3 | 94·38 |
| | 9 24 29·96 | 9 57 5·0 | 94·87 |
| | 9 26 27·88 | 9 47 35·8 | 95·35 |
| | 9 28 25·76 | 9 38 3·7 | 95·82 |
| | 9 30 23·60 | N. 9 28 28·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 30 23·60 | N.9 28 28·8 | 96·28 |
| 1 | 9 32 21·41 | 9 18 51·1 | 96·75 |
| 2 | 9 34 19·18 | 9 9 10·6 | 97·18 |
| 3 | 9 36 16·92 | 8 59 27·5 | 97·65 |
| 4 | 9 38 14·63 | 8 49 41·6 | 98·08 |
| 5 | 9 40 12·31 | 8 39 53·1 | 98·52 |
| 6 | 9 42 9·97 | 8 30 2·0 | 98·95 |
| 7 | 9 44 7·60 | 8 20 8·3 | 99·37 |
| 8 | 9 46 5·21 | 8 10 12·1 | 99·78 |
| 9 | 9 48 2·80 | 8 0 13·4 | 100·18 |
| 10 | 9 50 0·37 | 7 50 12·3 | 100·60 |
| 11 | 9 51 57·92 | 7 40 8·7 | 100·98 |
| 12 | 9 53 55·46 | 7 30 2·8 | 101·37 |
| 13 | 9 55 52·99 | 7 19 54·6 | 101·75 |
| 14 | 9 57 50·50 | 7 9 44·1 | 102·13 |
| 15 | 9 59 48·01 | 6 59 31·3 | 102·50 |
| 16 | 10 1 45·51 | 6 49 16·3 | 102·85 |
| 17 | 10 3 43·00 | 6 38 59·2 | 103·20 |
| 18 | 10 5 40·49 | 6 28 40·0 | 103·57 |
| 19 | 10 7 37·98 | 6 18 18·6 | 103·88 |
| 20 | 10 9 35·47 | 6 7 55·3 | 104·23 |
| 21 | 10 11 32·97 | 5 57 29·9 | 104·55 |
| 22 | 10 13 30·47 | 5 47 2·6 | 104·87 |
| 23 | 10 15 27·98 | N.5 36 33·4 | 105·18 |
| | *MONDAY, SEPT.* 1. | | |
| 0 | 10 17 25·49 | N. 5 26 2·3 | |

### PHASES OF THE MOON.

| | | d | h | m |
|---|---|---|---|---|
| ● | New Moon | 2 | 19 | 24·8 |
| ☽ | *First Quarter* | 10 | 10 | 40·5 |
| ○ | Full Moon | 17 | 1 | 16·9 |
| ☾ | *Last Quarter* | 24 | 6 | 27·0 |

| | | d | h |
|---|---|---|---|
| ☾ | Perigee | 15 | 10 |
| ☾ | Apogee | 27 | 11 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° |
| 5 | Sun | W. | 25 8 20 | 3319 | 26 32 10 | 3301 | 27 56 20 | 3287 | 29 20 |
| | Spica ♍ | E. | 44 8 14 | 2880 | 42 35 30 | 2873 | 41 2 37 | 2866 | 39 29 |
| | Antares | E. | 89 40 45 | 2903 | 88 8 30 | 2896 | 86 36 6 | 2888 | 85 [illegible] |
| 6 | Sun | W. | 36 27 3 | 3207 | 37 53 4 | 3196 | 39 19 18 | 3183 | 40 4[illegible] |
| | Venus | W. | 15 7 7 | 3660 | 16 24 37 | 3588 | 17 43 25 | 3531 | 19 [illegible] |
| | Spica ♍ | E. | 31 41 44 | 2817 | 30 7 38 | 2808 | 28 33 21 | 2799 | 26 5[illegible] |
| | Antares | E. | 77 18 13 | 2841 | 75 44 38 | 2832 | 74 10 52 | 2824 | 72 3[illegible] |
| 7 | Sun | W. | 48 1 43 | 3111 | 49 29 37 | 3102 | 50 57 44 | 3089 | 52 2[illegible] |
| | Venus | W. | 25 53 45 | 3320 | 27 17 33 | 3296 | 28 41 49 | 3275 | 30 [illegible] |
| | Antares | E. | 64 44 27 | 2772 | 63 9 22 | 2763 | 61 34 6 | 2754 | 59 5[illegible] |
| | α Aquilæ | E. | 115 13 55 | 3255 | 113 48 51 | 3232 | 112 23 20 | 3211 | 110 5[illegible] |
| 8 | Sun | W. | 59 51 43 | 3017 | 61 21 35 | 3004 | 62 51 43 | 2991 | 64 2[illegible] |
| | Venus | W. | 37 15 43 | 3162 | 38 42 38 | 3146 | 40 9 52 | 3129 | 41 3[illegible] |
| | Antares | E. | 51 58 17 | 2699 | 50 21 35 | 2690 | 48 44 42 | 2681 | 47 [illegible] |
| | α Aquilæ | E. | 103 41 54 | 3098 | 102 13 42 | 3083 | 100 45 11 | 3067 | 99 1[illegible] |
| | Saturn | E. | 119 56 46 | 2668 | 118 19 23 | 2656 | 116 41 44 | 2644 | 115 [illegible] |
| 9 | Sun | W. | 71 58 9 | 2913 | 73 30 12 | 2899 | 75 2 32 | 2886 | 76 3[illegible] |
| | Venus | W. | 49 0 10 | 3034 | 50 29 40 | 3018 | 51 59 30 | 3003 | 53 2[illegible] |
| | Antares | E. | 38 59 10 | 2629 | 37 20 55 | 2622 | 35 42 30 | 2615 | 34 [illegible] |
| | α Aquilæ | E. | 91 47 35 | 2981 | 90 16 59 | 2969 | 88 46 7 | 2958 | 87 1[illegible] |
| | Saturn | E. | 106 50 3 | 2570 | 105 10 26 | 2558 | 103 30 33 | 2545 | 101 5[illegible] |
| | Mars | E. | 118 38 6 | 2609 | 116 59 23 | 2593 | 115 20 19 | 2578 | 113 4[illegible] |
| 10 | Sun | W. | 84 22 40 | 2803 | 85 57 4 | 2789 | 87 31 47 | 2774 | 89 [illegible] |
| | Venus | W. | 61 5 15 | 2911 | 62 37 20 | 2895 | 64 9 45 | 2880 | 65 4[illegible] |
| | Spica ♍ | W. | 20 21 53 | 2467 | 22 3 52 | 2455 | 23 46 9 | 2441 | 25 2[illegible] |
| | α Aquilæ | E. | 79 36 9 | 2898 | 78 3 47 | 2891 | 76 31 16 | 2884 | 74 5[illegible] |
| | Saturn | E. | 93 24 59 | 2467 | 91 43 0 | 2455 | 90 0 43 | 2442 | 88 1[illegible] |
| | Mars | E. | 105 18 35 | 2489 | 103 37 6 | 2474 | 101 55 16 | 2460 | 100 1[illegible] |
| 11 | Sun | W. | 97 6 36 | 2690 | 98 43 30 | 2676 | 100 20 42 | 2661 | 101 5[illegible] |
| | Venus | W. | 73 31 10 | 2789 | 75 5 53 | 2773 | 76 40 56 | 2758 | 78 1[illegible] |
| | Spica ♍ | W. | 34 6 30 | 2362 | 35 51 0 | 2348 | 37 35 49 | 2335 | 39 2[illegible] |
| | α Aquilæ | E. | 67 13 47 | 2863 | 65 40 41 | 2864 | 64 7 36 | 2866 | 62 3[illegible] |
| | Saturn | E. | 79 40 31 | 2364 | 77 56 4 | 2351 | 76 11 18 | 2338 | 74 2[illegible] |
| | Mars | E. | 91 37 22 | 2378 | 89 53 15 | 2364 | 88 8 49 | 2351 | 86 2[illegible] |
| 12 | Sun | W. | 110 10 27 | 2581 | 111 49 48 | 2569 | 113 29 26 | 2556 | 115 [illegible] |
| | Venus | W. | 86 18 0 | 2672 | 87 55 17 | 2659 | 89 32 52 | 2645 | 91 1[illegible] |
| | Spica ♍ | W. | 48 11 22 | 2258 | 49 58 23 | 2246 | 51 45 42 | 2234 | 53 3[illegible] |
| | Saturn | E. | 65 36 26 | 2266 | 63 49 36 | 2254 | 62 2 29 | 2243 | 60 1[illegible] |
| | Mars | E. | 77 35 55 | 2281 | 75 49 27 | 2270 | 74 2 43 | 2260 | 72 1[illegible] |
| | Fomalhaut | E. | 83 4 20 | 2734 | 81 28 25 | 2726 | 79 52 19 | 2719 | 78 1[illegible] |
| 13 | Sun | W. | 123 33 3 | 2488 | 125 14 33 | 2478 | 126 56 17 | 2470 | 128 3[illegible] |
| | Venus | W. | 99 24 33 | 2572 | 101 4 7 | 2561 | 102 43 56 | 2550 | 104 2[illegible] |
| | Spica ♍ | W. | 62 35 44 | 2166 | 64 25 3 | 2156 | 66 14 37 | 2147 | 68 [illegible] |
| | Saturn | E. | 51 14 25 | 2186 | 49 25 37 | 2178 | 47 36 36 | 2171 | 45 4[illegible] |
| | Mars | E. | 63 17 29 | 2210 | 61 29 16 | 2204 | 59 40 55 | 2199 | 57 5[illegible] |
| | Fomalhaut | E. | 70 13 35 | 2707 | 68 37 4 | 2710 | 67 0 37 | 2715 | 65 2[illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| ar's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| | W. | 30 45 31 | 3259 | 32 10 31 | 3245 | 33 35 47 | 3232 | 35 1 18 | 3220 |
| a ny | E. | 37 56 20 | 2850 | 36 22 57 | 2842 | 34 49 23 | 2834 | 33 15 39 | 2825 |
| ares | E. | 83 30 48 | 2873 | 81 57 55 | 2865 | 80 24 51 | 2857 | 78 51 37 | 2849 |
| | W. | 42 12 30 | 3160 | 43 39 27 | 3148 | 45 6 38 | 3136 | 46 34 4 | 3125 |
| us | W. | 20 23 59 | 3441 | 21 45 29 | 3405 | 23 7 40 | 3374 | 24 30 26 | 3345 |
| a ny | E. | 25 24 12 | 2782 | 23 49 21 | 2772 | 22 14 17 | 2763 | 20 39 1 | 2754 |
| ares | E. | 71 2 49 | 2807 | 69 28 30 | 2798 | 67 54 0 | 2790 | 66 19 19 | 2782 |
| | W. | 53 54 45 | 3065 | 55 23 37 | 3054 | 56 52 43 | 3041 | 58 22 5 | 3028 |
| us | W. | 31 31 36 | 3234 | 32 57 5 | 3215 | 34 22 56 | 3197 | 35 49 9 | 3179 |
| ares | E. | 58 22 58 | 2736 | 56 47 6 | 2727 | 55 11 2 | 2718 | 53 34 46 | 2708 |
| quilæ | E. | 109 31 4 | 3171 | 108 4 20 | 3152 | 106 37 13 | 3134 | 105 9 44 | 3116 |
| | W. | 65 52 47 | 2966 | 67 23 43 | 2953 | 68 54 55 | 2939 | 70 26 24 | 2927 |
| us | W. | 43 5 20 | 3096 | 44 33 34 | 3081 | 46 2 6 | 3065 | 47 30 58 | 3049 |
| ares | E. | 45 30 19 | 2663 | 43 52 49 | 2654 | 42 15 7 | 2646 | 40 37 14 | 2638 |
| quilæ | E. | 97 47 11 | 3036 | 96 17 43 | 3022 | 94 47 57 | 3008 | 93 17 54 | 2995 |
| rn | E. | 113 25 37 | 2620 | 111 47 9 | 2607 | 110 8 23 | 2595 | 108 29 21 | 2583 |
| | W. | 78 8 3 | 2859 | 79 41 15 | 2845 | 81 14 45 | 2831 | 82 48 33 | 2816 |
| us | W. | 55 0 8 | 2973 | 56 30 55 | 2957 | 58 2 2 | 2941 | 59 33 29 | 2926 |
| ares | E. | 32 25 14 | 2604 | 30 46 25 | 2601 | 29 7 31 | 2599 | 27 28 34 | 2599 |
| quilæ | E. | 85 43 40 | 2935 | 84 12 6 | 2925 | 82 40 19 | 2916 | 81 8 20 | 2906 |
| rn | E. | 100 9 53 | 2519 | 98 29 6 | 2507 | 96 48 2 | 2494 | 95 6 40 | 2480 |
| s | E. | 112 1 8 | 2548 | 110 21 1 | 2533 | 108 40 33 | 2517 | 106 59 44 | 2503 |
| | W. | 90 42 9 | 2747 | 92 17 47 | 2732 | 93 53 45 | 2718 | 95 30 1 | 2704 |
| us | W. | 67 15 35 | 2849 | 68 48 59 | 2834 | 70 22 43 | 2818 | 71 56 47 | 2804 |
| a ny | W. | 27 11 40 | 2415 | 28 54 54 | 2401 | 30 38 27 | 2388 | 32 22 19 | 2375 |
| quilæ | E. | 73 25 49 | 2873 | 71 52 55 | 2869 | 70 19 56 | 2866 | 68 46 53 | 2863 |
| rn | E. | 86 35 13 | 2415 | 84 52 0 | 2403 | 83 8 29 | 2389 | 81 24 39 | 2377 |
| s | E. | 98 30 37 | 2432 | 96 47 48 | 2417 | 95 4 38 | 2404 | 93 21 10 | 2391 |
| | W. | 103 36 3 | 2634 | 105 14 12 | 2621 | 106 52 39 | 2607 | 108 31 24 | 2594 |
| us | W. | 79 52 0 | 2729 | 81 28 2 | 2715 | 83 4 22 | 2700 | 84 41 2 | 2687 |
| a ny | W. | 41 6 24 | 2309 | 42 52 10 | 2296 | 44 38 15 | 2283 | 46 24 39 | 2270 |
| quilæ | E. | 61 1 37 | 2877 | 59 28 49 | 2884 | 57 56 10 | 2896 | 56 23 46 | 2909 |
| rn | E. | 72 40 53 | 2313 | 70 55 12 | 2301 | 69 9 14 | 2289 | 67 22 59 | 2277 |
| s | E. | 84 39 2 | 2326 | 82 53 41 | 2315 | 81 8 3 | 2302 | 79 22 7 | 2292 |
| | W. | 116 49 34 | 2532 | 118 30 3 | 2520 | 120 10 48 | 2510 | 121 51 48 | 2499 |
| us | W. | 92 48 57 | 2619 | 94 27 26 | 2607 | 96 6 12 | 2595 | 97 45 14 | 2583 |
| a ny | W. | 55 21 14 | 2211 | 57 9 26 | 2198 | 58 57 56 | 2188 | 60 46 42 | 2177 |
| rn | E. | 58 27 27 | 2223 | 56 39 33 | 2213 | 54 51 25 | 2203 | 53 3 2 | 2194 |
| s | E. | 70 28 30 | 2241 | 68 41 3 | 2232 | 66 53 23 | 2225 | 65 5 32 | 2217 |
| nalhaut | E. | 76 39 42 | 2709 | 75 3 14 | 2707 | 73 26 43 | 2705 | 71 50 9 | 2705 |
| | W. | 130 20 22 | 2452 | 132 2 43 | 2445 | 133 45 14 | 2438 | 135 27 55 | 2431 |
| us | W. | 106 4 18 | 2530 | 107 44 49 | 2521 | 109 25 33 | 2512 | 111 6 29 | 2505 |
| ca ny | W. | 69 54 27 | 2128 | 71 44 44 | 2120 | 73 35 13 | 2111 | 75 25 56 | 2104 |
| urn | E. | 43 58 4 | 2159 | 42 8 35 | 2155 | 40 18 59 | 2151 | 38 29 18 | 2149 |
| rs | E. | 56 3 51 | 2192 | 54 15 12 | 2190 | 52 26 30 | 2190 | 50 37 47 | 2191 |
| nalhaut | E. | 63 48 8 | 2732 | 62 12 11 | 2744 | 60 36 30 | 2760 | 59 1 9 | 2778 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 13 | α Pegasi | E. | 86 28 29 | 2319 | 84 42 57 | 2309 | 82 57 11 | 2300 | 81 11 1 |
| 14 | Spica ♍ | W. | 77 16 49 | 2096 | 79 7 54 | 2089 | 80 59 10 | 2084 | 82 50 3 |
| | Antares | W. | 32 14 1 | 2176 | 34 3 5 | 2162 | 35 52 30 | 2149 | 37 42 1 |
| | Saturn | E. | 36 39 33 | 2147 | 34 49 46 | 2148 | 33 0 0 | 2150 | 31 10 1 |
| | Mars | E. | 48 49 6 | 2193 | 47 0 28 | 2197 | 45 11 56 | 2204 | 43 23 3 |
| | α Pegasi | E. | 72 18 50 | 2265 | 70 31 59 | 2263 | 68 45 5 | 2261 | 66 58 |
| | Jupiter | E. | 121 37 38 | 2116 | 119 47 3 | 2109 | 117 56 18 | 2103 | 116 5 2 |
| 15 | Spica ♍ | W. | 92 9 31 | 2058 | 94 1 35 | 2057 | 95 53 41 | 2054 | 97 45 5 |
| | Antares | W. | 46 54 27 | 2102 | 48 45 24 | 2096 | 50 36 29 | 2093 | 52 27 3 |
| | Mars | E. | 34 26 22 | 2304 | 32 40 29 | 2337 | 30 55 23 | 2378 | 29 11 1 |
| | α Pegasi | E. | 58 3 47 | 2276 | 56 17 12 | 2284 | 54 30 49 | 2294 | 52 44 4 |
| | α Arietis | E. | 100 48 47 | 2108 | 98 58 0 | 2106 | 97 7 10 | 2104 | 95 16 1 |
| | Jupiter | E. | 106 48 48 | 2076 | 104 57 12 | 2074 | 103 5 32 | 2072 | 101 13 5 |
| 16 | Antares | W. | 61 44 5 | 2089 | 63 35 21 | 2092 | 65 26 33 | 2095 | 67 17 4 |
| | α Pegasi | E. | 43 59 11 | 2398 | 42 15 34 | 2428 | 40 32 39 | 2460 | 38 50 2 |
| | α Arietis | E. | 86 1 49 | 2109 | 84 11 4 | 2112 | 82 20 23 | 2116 | 80 29 4 |
| | Jupiter | E. | 91 55 16 | 2076 | 90 3 40 | 2079 | 88 12 9 | 2083 | 86 20 4 |
| 17 | Antares | W. | 76 31 30 | 2128 | 78 21 47 | 2136 | 80 11 51 | 2145 | 82 1 4 |
| | α Arietis | E. | 71 19 19 | 2159 | 69 29 49 | 2169 | 67 40 34 | 2179 | 65 51 3 |
| | Jupiter | E. | 77 5 36 | 2119 | 75 15 6 | 2128 | 73 24 49 | 2136 | 71 34 4 |
| | Aldebaran | E. | 104 22 34 | 2115 | 102 31 57 | 2122 | 100 41 32 | 2131 | 98 51 2 |
| 18 | Antares | W. | 91 7 6 | 2211 | 92 55 18 | 2223 | 94 43 11 | 2237 | 96 30 4 |
| | Saturn | W. | 24 11 45 | 2305 | 25 57 37 | 2301 | 27 43 35 | 2300 | 29 29 3 |
| | Mars | W. | 17 17 48 | 3372 | 18 40 37 | 3163 | 20 7 30 | 3007 | 21 37 3 |
| | α Arietis | E. | 56 51 15 | 2259 | 55 4 15 | 2275 | 53 17 39 | 2292 | 51 31 2 |
| | Jupiter | E. | 62 28 21 | 2202 | 60 39 57 | 2216 | 58 51 53 | 2229 | 57 4 8 |
| | Aldebaran | E. | 89 44 17 | 2197 | 87 55 44 | 2210 | 86 7 31 | 2223 | 84 19 3 |
| 19 | α Aquilæ | W. | 56 5 9 | 2918 | 57 37 5 | 2911 | 59 9 10 | 2905 | 60 41 2 |
| | Saturn | W. | 38 17 40 | 2342 | 40 2 39 | 2353 | 41 47 21 | 2366 | 43 31 4 |
| | Mars | W. | 29 35 39 | 2610 | 31 14 21 | 2588 | 32 53 33 | 2571 | 34 33 8 |
| | α Arietis | E. | 42 47 29 | 2414 | 41 4 14 | 2438 | 39 21 34 | 2465 | 37 39 3 |
| | Jupiter | E. | 48 10 46 | 2319 | 46 25 14 | 2335 | 44 40 5 | 2352 | 42 55 2 |
| | Aldebaran | E. | 75 25 35 | 2313 | 73 39 54 | 2329 | 71 54 37 | 2346 | 70 9 4 |
| 20 | α Aquilæ | W. | 68 22 22 | 2917 | 69 54 19 | 2924 | 71 26 7 | 2933 | 72 57 4 |
| | Saturn | W. | 52 8 43 | 2453 | 53 51 2 | 2470 | 55 32 58 | 2485 | 57 14 3 |
| | Mars | W. | 42 53 12 | 2554 | 44 33 10 | 2559 | 46 13 1 | 2567 | 47 52 4 |
| | Jupiter | E. | 34 17 55 | 2458 | 32 35 43 | 2477 | 30 53 57 | 2495 | 29 12 3 |
| | Aldebaran | E. | 61 31 32 | 2451 | 59 49 10 | 2469 | 58 7 13 | 2487 | 56 25 4 |
| | Sun | E. | 140 26 35 | 2795 | 138 52 1 | 2811 | 137 17 48 | 2829 | 135 43 5 |
| 21 | α Aquilæ | W. | 80 32 24 | 3004 | 82 2 32 | 3018 | 83 32 23 | 3033 | 85 1 5 |
| | Saturn | W. | 65 36 29 | 2587 | 67 15 42 | 2603 | 68 54 33 | 2621 | 70 32 5 |
| | Mars | W. | 56 7 53 | 2629 | 57 46 9 | 2642 | 59 24 7 | 2655 | 61 1 4 |
| | Fomalhaut | W. | 52 59 27 | 3345 | 54 22 46 | 3332 | 55 46 20 | 3323 | 57 10 5 |
| | Aldebaran | E. | 48 4 37 | 2600 | 46 25 42 | 2618 | 44 47 12 | 2638 | 43 9 8 |
| | Pollux | E. | 90 36 43 | 2662 | 88 59 12 | 2681 | 87 22 6 | 2698 | 85 45 2 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 13 | α Pegasi | E. | 79 25 2 | 2286 | 77 38 42 | 2279 | 75 52 12 | 2274 | 74 5 34 | 2270 |
| 14 | Spica ♍ | W. | 84 42 8 | 2073 | 86 33 49 | 2068 | 88 25 37 | 2064 | 90 17 31 | 2061 |
| | Antares | W. | 39 32 15 | 2129 | 41 22 30 | 2120 | 43 12 58 | 2113 | 45 3 38 | 2107 |
| | Saturn | E. | 29 20 42 | 2162 | 27 31 17 | 2172 | 25 42 7 | 2187 | 23 53 20 | 2206 |
| | Mars | E. | 41 35 25 | 2223 | 39 47 32 | 2238 | 38 0 1 | 2255 | 36 12 55 | 2277 |
| | α Pegasi | E. | 65 11 11 | 2261 | 63 24 14 | 2263 | 61 37 20 | 2266 | 59 50 30 | 2270 |
| | Jupiter | E. | 114 14 19 | 2091 | 112 23 6 | 2086 | 110 31 46 | 2083 | 108 40 20 | 2079 |
| 15 | Spica ♍ | W. | 99 38 1 | 2053 | 101 30 12 | 2054 | 103 22 22 | 2055 | 105 14 31 | 2057 |
| | Antares | W. | 54 18 53 | 2088 | 56 10 10 | 2088 | 58 1 28 | 2087 | 59 52 47 | 2088 |
| | Mars | E. | 27 28 19 | 2488 | 25 46 49 | 2564 | 24 7 4 | 2659 | 22 29 29 | 2779 |
| | α Pegasi | E. | 50 58 48 | 2318 | 49 13 15 | 2334 | 47 28 5 | 2353 | 45 43 23 | 2374 |
| | α Arietis | E. | 93 25 22 | 2103 | 91 34 27 | 2103 | 89 43 32 | 2104 | 87 52 39 | 2106 |
| | Jupiter | E. | 99 22 7 | 2070 | 97 30 22 | 2071 | 95 38 38 | 2072 | 93 46 56 | 2074 |
| 16 | Antares | W. | 69 8 42 | 2103 | 70 59 37 | 2108 | 72 50 24 | 2114 | 74 41 2 | 2120 |
| | α Pegasi | E. | 37 9 13 | 2542 | 35 28 58 | 2592 | 33 49 52 | 2650 | 32 12 5 | 2719 |
| | α Arietis | E. | 78 39 23 | 2128 | 76 49 6 | 2134 | 74 58 59 | 2141 | 73 9 3 | 2149 |
| | Jupiter | E. | 84 29 24 | 2092 | 82 38 13 | 2098 | 80 47 11 | 2104 | 78 56 18 | 2111 |
| 17 | Antares | W. | 83 51 19 | 2164 | 85 40 41 | 2175 | 87 29 46 | 2186 | 89 18 35 | 2198 |
| | α Arietis | E. | 64 2 52 | 2202 | 62 14 28 | 2215 | 60 26 23 | 2229 | 58 38 38 | 2243 |
| | Jupiter | E. | 69 44 56 | 2156 | 67 55 22 | 2167 | 66 6 5 | 2178 | 64 17 4 | 2190 |
| | Aldebaran | E. | 97 1 23 | 2151 | 95 11 42 | 2161 | 93 22 16 | 2172 | 91 33 7 | 2185 |
| 18 | Antares | W. | 98 17 56 | 2265 | 100 4 47 | 2281 | 101 51 15 | 2296 | 103 37 21 | 2311 |
| | Saturn | W. | 31 15 30 | 2307 | 33 1 19 | 2314 | 34 46 58 | 2322 | 36 32 26 | 2331 |
| | Mars | W. | 23 10 6 | 2801 | 24 44 33 | 2732 | 26 20 31 | 2680 | 27 57 38 | 2640 |
| | α Arietis | E. | 49 45 42 | 2328 | 48 0 24 | 2348 | 46 15 35 | 2369 | 44 31 16 | 2391 |
| | Jupiter | E. | 55 16 44 | 2257 | 53 29 41 | 2272 | 51 43 0 | 2287 | 49 56 42 | 2302 |
| | Aldebaran | E. | 82 32 6 | 2252 | 80 44 55 | 2266 | 78 58 6 | 2281 | 77 11 39 | 2297 |
| 19 | α Aquilæ | W. | 62 13 37 | 2902 | 63 45 53 | 2904 | 65 18 7 | 2906 | 66 50 18 | 2911 |
| | Saturn | W. | 45 15 50 | 2393 | 46 59 35 | 2408 | 48 42 59 | 2422 | 50 26 2 | 2438 |
| | Mars | W. | 36 12 58 | 2553 | 37 52 58 | 2549 | 39 33 3 | 2548 | 41 13 9 | 2551 |
| | α Arietis | E. | 35 58 6 | 2521 | 34 17 22 | 2553 | 32 37 22 | 2586 | 30 58 8 | 2624 |
| | Jupiter | E. | 41 11 1 | 2387 | 39 27 7 | 2403 | 37 43 37 | 2422 | 36 0 33 | 2440 |
| | Aldebaran | E. | 68 25 16 | 2380 | 66 41 12 | 2397 | 64 57 33 | 2415 | 63 14 20 | 2433 |
| 20 | α Aquilæ | W. | 74 29 9 | 2954 | 76 0 20 | 2965 | 77 31 17 | 2977 | 79 1 59 | 2990 |
| | Saturn | W. | 58 55 42 | 2519 | 60 36 29 | 2536 | 62 16 52 | 2553 | 63 56 52 | 2569 |
| | Mars | W. | 49 32 12 | 2584 | 51 11 29 | 2594 | 52 50 32 | 2604 | 54 29 21 | 2617 |
| | Jupiter | E. | 27 31 45 | 2534 | 25 51 19 | 2554 | 24 11 21 | 2575 | 22 31 52 | 2595 |
| | Aldebaran | E. | 54 44 37 | 2525 | 53 3 58 | 2543 | 51 23 45 | 2562 | 49 43 58 | 2581 |
| | Sun | E. | 134 10 30 | 2864 | 132 37 25 | 2882 | 131 4 43 | 2900 | 129 32 24 | 2918 |
| 21 | α Aquilæ | W. | 86 31 7 | 3065 | 88 0 0 | 3081 | 89 28 33 | 3097 | 90 56 46 | 3115 |
| | Saturn | W. | 72 11 3 | 2655 | 73 48 44 | 2672 | 75 26 2 | 2688 | 77 2 58 | 2705 |
| | Mars | W. | 62 39 12 | 2682 | 64 16 16 | 2695 | 65 53 3 | 2709 | 67 29 31 | 2723 |
| | Fomalhaut | W. | 58 34 1 | 3308 | 59 58 3 | 3304 | 61 22 9 | 3301 | 62 46 19 | 3301 |
| | Aldebaran | E. | 41 31 30 | 2675 | 39 54 17 | 2694 | 38 17 29 | 2713 | 36 41 7 | 2733 |
| | Pollux | E. | 84 9 4 | 2734 | 82 33 9 | 2752 | 80 57 38 | 2770 | 79 22 31 | 2787 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 21 | Sun E. | 128 0 28 | 2936 | 126 28 55 | 2954 | 124 57 45 | 2973 | 123 26 58 | 2990 |
| 22 | Saturn W. | 78 39 32 | 2720 | 80 15 45 | 2737 | 81 51 35 | 2753 | 83 27 5 | 2769 |
| | Mars W. | 69 5 40 | 2738 | 70 41 30 | 2751 | 72 17 2 | 2766 | 73 52 15 | 2779 |
| | Fomalhaut W. | 64 10 29 | 3302 | 65 34 38 | 3304 | 66 58 45 | 3307 | 68 22 49 | 3311 |
| | α Pegasi W. | 44 41 58 | 3030 | 46 11 34 | 3030 | 47 41 10 | 3031 | 49 10 44 | 3034 |
| | Aldebaran E. | 35 5 11 | 2751 | 33 29 39 | 2771 | 31 54 33 | 2791 | 30 19 53 | 2811 |
| | Pollux E. | 77 47 46 | 2805 | 76 13 25 | 2823 | 74 39 27 | 2840 | 73 5 51 | 2858 |
| | Sun E. | 115 58 39 | 3080 | 114 30 5 | 3097 | 113 1 52 | 3115 | 111 34 0 | 3131 |
| 23 | Saturn W. | 91 19 32 | 2842 | 92 53 5 | 2857 | 94 26 19 | 2871 | 95 59 15 | 2884 |
| | Mars W. | 81 43 50 | 2848 | 83 17 16 | 2861 | 84 50 25 | 2873 | 86 23 18 | 2886 |
| | Fomalhaut W. | 75 21 44 | 3341 | 76 45 8 | 3348 | 78 8 24 | 3356 | 79 31 31 | 3365 |
| | α Pegasi W. | 56 37 20 | 3060 | 58 6 19 | 3067 | 59 35 9 | 3074 | 61 3 50 | 3081 |
| | Pollux E. | 65 23 27 | 2943 | 63 52 3 | 2960 | 62 21 0 | 2976 | 60 50 17 | 2993 |
| | Sun E. | 104 19 36 | 3211 | 102 53 40 | 3226 | 101 28 2 | 3240 | 100 2 40 | 3255 |
| 24 | Saturn W. | 103 39 51 | 2945 | 105 11 13 | 2956 | 106 42 21 | 2967 | 108 13 15 | 2978 |
| | Mars W. | 94 3 44 | 2946 | 95 35 5 | 2958 | 97 6 11 | 2968 | 98 37 4 | 2979 |
| | Fomalhaut W. | 86 24 33 | 3411 | 87 46 37 | 3420 | 89 8 31 | 3430 | 90 30 13 | 3440 |
| | α Pegasi W. | 68 25 4 | 3118 | 69 52 52 | 3126 | 71 20 30 | 3133 | 72 48 0 | 3140 |
| | Pollux E. | 53 21 52 | 3074 | 51 53 11 | 3091 | 50 24 50 | 3107 | 48 56 49 | 3124 |
| | Sun E. | 92 59 54 | 3319 | 91 36 5 | 3332 | 90 12 30 | 3342 | 88 49 7 | 3353 |
| 25 | Mars W. | 106 8 20 | 3026 | 107 38 0 | 3035 | 109 7 29 | 3043 | 110 36 48 | 3052 |
| | Fomalhaut W. | 97 15 52 | 3492 | 98 36 25 | 3504 | 99 56 45 | 3515 | 101 16 53 | 3525 |
| | α Pegasi W. | 80 3 24 | 3173 | 81 30 6 | 3178 | 82 56 41 | 3184 | 84 23 9 | 3190 |
| | α Arietis W. | 36 25 56 | 3156 | 37 52 58 | 3153 | 39 20 3 | 3152 | 40 47 9 | 3152 |
| | Jupiter W. | 29 21 56 | 3035 | 30 51 26 | 3041 | 32 20 48 | 3047 | 33 50 3 | 3052 |
| | Pollux E. | 41 41 51 | 3212 | 40 15 56 | 3231 | 38 50 24 | 3252 | 37 25 16 | 3274 |
| | Sun E. | 81 55 7 | 3400 | 80 32 50 | 3408 | 79 10 43 | 3415 | 77 48 43 | 3422 |
| 26 | α Pegasi W. | 91 33 57 | 3213 | 92 59 51 | 3217 | 94 25 40 | 3220 | 95 51 25 | 3224 |
| | α Arietis W. | 48 2 51 | 3149 | 49 30 1 | 3149 | 50 57 11 | 3149 | 52 24 21 | 3148 |
| | Jupiter W. | 41 14 49 | 3073 | 42 43 32 | 3076 | 44 12 11 | 3078 | 45 40 47 | 3080 |
| | Aldebaran W. | 14 39 30 | 3212 | 16 5 25 | 3191 | 17 31 45 | 3174 | 18 58 25 | 3162 |
| | Pollux E. | 30 26 40 | 3414 | 29 4 39 | 3452 | 27 43 21 | 3495 | 26 22 51 | 3544 |
| | Sun E. | 71 0 28 | 3449 | 69 39 7 | 3453 | 68 17 50 | 3456 | 66 56 37 | 3460 |
| 27 | α Arietis W. | 59 40 30 | 3142 | 61 7 49 | 3140 | 62 35 10 | 3138 | 64 2 33 | 3136 |
| | Jupiter W. | 53 3 20 | 3084 | 54 31 49 | 3084 | 56 0 18 | 3084 | 57 28 47 | 3083 |
| | Aldebaran W. | 26 14 39 | 3126 | 27 42 16 | 3121 | 29 10 0 | 3118 | 30 37 48 | 3113 |
| | Sun E. | 60 11 17 | 3469 | 58 50 18 | 3470 | 57 29 20 | 3470 | 56 8 22 | 3470 |
| 28 | α Arietis W. | 71 20 17 | 3120 | 72 48 2 | 3116 | 74 15 52 | 3113 | 75 43 46 | 3108 |
| | Jupiter W. | 64 51 45 | 3072 | 66 20 29 | 3069 | 67 49 17 | 3065 | 69 18 10 | 3060 |
| | Aldebaran W. | 37 58 9 | 3092 | 39 26 29 | 3087 | 40 54 55 | 3082 | 42 23 27 | 3078 |
| | Sun E. | 49 23 21 | 3463 | 48 2 16 | 3461 | 46 41 8 | 3459 | 45 19 58 | 3456 |
| 29 | α Arietis W. | 83 4 44 | 3083 | 84 33 14 | 3077 | 86 1 52 | 3072 | 87 30 36 | 3065 |
| | Jupiter W. | 76 43 54 | 3037 | 78 13 21 | 3031 | 79 42 56 | 3026 | 81 12 37 | 3019 |
| | Aldebaran W. | 49 47 41 | 3049 | 51 16 53 | 3043 | 52 46 12 | 3037 | 54 15 39 | 3031 |
| | Sun E. | 38 33 20 | 3440 | 37 11 49 | 3438 | 35 50 15 | 3434 | 34 28 37 | 3431 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Midnight. | P. L. of diff. | XV$^h$. | P. L. of diff. | XVIII$^h$. | P. L. of diff. | XXI$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 21 | Sun E. | 121 56 33 | 3009 | 120 26 31 | 3027 | 118 56 52 | 3044 | 117 27 34 | 3063 |
| 22 | Saturn W. | 85 2 14 | 2784 | 86 37 3 | 2799 | 88 11 32 | 2814 | 89 45 42 | 2829 |
| | Mars W. | 75 27 10 | 2793 | 77 1 47 | 2807 | 78 36 6 | 2821 | 80 10 7 | 2835 |
| | Fomalhaut W. | 69 46 48 | 3315 | 71 10 42 | 3320 | 72 34 30 | 3326 | 73 58 11 | 3333 |
| | α Pegasi W. | 50 40 14 | 3038 | 52 9 40 | 3043 | 53 39 0 | 3048 | 55 8 14 | 3054 |
| | Aldebaran E. | 28 45 39 | 2830 | 27 11 50 | 2851 | 25 38 29 | 2872 | 24 5 34 | 2895 |
| | Pollux E. | 71 32 38 | 2876 | 69 59 48 | 2892 | 68 27 19 | 2909 | 66 55 12 | 2927 |
| | Sun E. | 110 6 28 | 3148 | 108 39 16 | 3164 | 107 12 24 | 3180 | 105 45 51 | 3195 |
| 23 | Saturn W. | 97 31 54 | 2897 | 99 4 17 | 2909 | 100 36 24 | 2922 | 102 8 15 | 2934 |
| | Mars W. | 87 55 54 | 2898 | 89 28 15 | 2912 | 91 0 19 | 2923 | 92 32 9 | 2935 |
| | Fomalhaut W. | 80 54 27 | 3373 | 82 17 14 | 3382 | 83 39 51 | 3392 | 85 2 17 | 3401 |
| | α Pegasi W. | 62 32 23 | 3088 | 64 0 47 | 3096 | 65 29 2 | 3104 | 66 57 7 | 3110 |
| | Pollux E. | 59 19 56 | 3009 | 57 49 54 | 3026 | 56 20 13 | 3043 | 54 50 53 | 3058 |
| | Sun E. | 98 37 36 | 3269 | 97 12 48 | 3282 | 95 48 15 | 3294 | 94 23 57 | 3307 |
| 24 | Saturn W. | 109 43 56 | 2987 | 111 14 25 | 2997 | 112 44 42 | 3006 | 114 14 48 | 3014 |
| | Mars W. | 100 7 44 | 2989 | 101 38 11 | 2998 | 103 8 26 | 3008 | 104 38 29 | 3018 |
| | Fomalhaut W. | 91 51 44 | 3450 | 93 13 4 | 3461 | 94 34 12 | 3472 | 95 55 8 | 3482 |
| | α Pegasi W. | 74 15 21 | 3147 | 75 42 34 | 3154 | 77 9 38 | 3160 | 78 36 35 | 3167 |
| | Pollux E. | 47 29 8 | 3141 | 46 1 48 | 3158 | 44 34 48 | 3175 | 43 8 9 | 3193 |
| | Sun E. | 87 25 57 | 3363 | 86 2 58 | 3373 | 84 40 11 | 3382 | 83 17 34 | 3391 |
| 25 | Mars W. | 112 5 56 | 3060 | 113 34 55 | 3067 | 115 3 45 | 3076 | 116 32 24 | 3083 |
| | Fomalhaut W. | 102 36 49 | 3537 | 103 56 32 | 3549 | 105 16 2 | 3560 | 106 35 20 | 3574 |
| | α Pegasi W. | 85 49 30 | 3195 | 87 15 45 | 3199 | 88 41 55 | 3205 | 90 7 58 | 3209 |
| | α Arietis W. | 42 14 16 | 3151 | 43 41 24 | 3150 | 45 8 33 | 3150 | 46 35 42 | 3150 |
| | Jupiter W. | 35 19 11 | 3057 | 36 48 13 | 3061 | 38 17 10 | 3065 | 39 46 2 | 3069 |
| | Pollux E. | 36 0 34 | 3297 | 34 36 19 | 3322 | 33 12 33 | 3350 | 31 49 19 | 3380 |
| | Sun E. | 76 26 51 | 3428 | 75 5 6 | 3433 | 73 43 27 | 3439 | 72 21 55 | 3444 |
| 26 | α Pegasi W. | 97 17 5 | 3227 | 98 42 42 | 3230 | 100 8 16 | 3233 | 101 33 46 | 3235 |
| | α Arietis W. | 53 51 33 | 3148 | 55 18 45 | 3146 | 56 45 59 | 3145 | 58 13 14 | 3144 |
| | Jupiter W. | 47 9 21 | 3082 | 48 37 53 | 3083 | 50 6 23 | 3084 | 51 34 52 | 3085 |
| | Aldebaran W. | 20 25 20 | 3152 | 21 52 27 | 3144 | 23 19 43 | 3138 | 24 47 7 | 3131 |
| | Pollux E. | 25 3 15 | 3602 | 23 44 43 | 3670 | 22 27 24 | 3750 | 21 11 30 | 3849 |
| | Sun E. | 65 35 28 | 3463 | 64 14 22 | 3464 | 62 53 18 | 3467 | 61 32 17 | 3468 |
| 27 | α Arietis W. | 65 29 59 | 3133 | 66 57 28 | 3130 | 68 25 1 | 3128 | 69 52 37 | 3124 |
| | Jupiter W. | 58 57 18 | 3081 | 60 25 51 | 3079 | 61 54 26 | 3077 | 63 23 4 | 3074 |
| | Aldebaran W. | 32 5 42 | 3109 | 33 33 41 | 3105 | 35 1 45 | 3100 | 36 29 55 | 3096 |
| | Sun E. | 54 47 24 | 3469 | 53 26 25 | 3468 | 52 5 25 | 3467 | 50 44 24 | 3465 |
| 28 | α Arietis W. | 77 11 46 | 3104 | 78 39 51 | 3098 | 80 8 3 | 3094 | 81 36 20 | 3088 |
| | Jupiter W. | 70 47 8 | 3056 | 72 16 11 | 3052 | 73 45 19 | 3047 | 75 14 34 | 3043 |
| | Aldebaran W. | 43 52 4 | 3072 | 45 20 48 | 3066 | 46 49 39 | 3061 | 48 18 36 | 3055 |
| | Sun E. | 43 58 45 | 3454 | 42 37 29 | 3451 | 41 16 10 | 3447 | 39 54 46 | 3445 |
| 29 | α Arietis W. | 88 59 28 | 3059 | 90 28 28 | 3053 | 91 57 35 | 3047 | 93 26 50 | 3039 |
| | Jupiter W. | 82 42 26 | 3013 | 84 12 23 | 3006 | 85 42 28 | 3000 | 87 12 41 | 2992 |
| | Aldebaran W. | 55 45 14 | 3023 | 57 14 58 | 3017 | 58 44 50 | 3010 | 60 14 51 | 3002 |
| | Sun E. | 33 6 55 | 3428 | 31 45 10 | 3425 | 30 23 22 | 3423 | 29 1 31 | 3421 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER

At $14^h\ 30^m$, Mean Time.

| Day of the Month. | West. | | | | | | | | | | | | | | | | | | East. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 4· | | | | | | | 2· | | | ○ | 3· | | 1· | |
| 2 | | | | | ·4 | | | | | | 3· | | ·2 | ·1 | ○ | | | | |
| 3 | | | | | ·4 | | | | ·3 | | | | | | ○ | 1· | | | ·2 |
| 4 | | | | | | ·4 | | | | | | ·3 | | | ○ | | 2· | | |
| 5 | | | | | | | | ·4 | | 2· | | | | 1· | ○ | | ·3 | | |
| 6 | ·2 ● | | | | | | | | | | | | ·4 | | ○ | | ·1 | | |
| 7 | | | | | | | | | | | | 1· | | | ○ | | ·4 | 2· | 3· |
| 8 | | | | | | | | | | | | | 2· | | ○ | 3· | 1· | | |
| 9 | | | | | | | | | | | 3· | ·2 | ·1 | | ○ | | | | |
| 10 | | | | | | | | | ·3 | | | | | | ○ | 1· | | ·2 | |
| 11 | ·1 ● | | | | | | | | | | ·3 | | | | ○ | | 2· | | |
| 12 | | | | | | | | | | | 2· | | | 1· | ○ | ·3 | | | |
| 13 | ·2 ● | | | | | | | | | | | | | | ○ | | ·1 | | |
| 14 | | | | | | | | | | | | 1· | | | ○ | | | 4· 2. | |
| 15 | | | | | | | | | | | | | | 4· 2· | ○ | | 3· 1. | | |
| 16 | | | | | | | | | | 4· | 3· ·2 | | ·1 | | ○ | | | | |
| 17 | | | | | | | 4· | | 3· | | | | | | ○ | | 1· | ·2 | |
| 18 | | | | | 4· | | | | | | ·3 | | | ·1 | ○ | | 2· | | |
| 19 | 1· ○ | | | ·4 | | | | | | | | 2· | | | ○ | | | | |
| 20 | | | | | ·4 | | | | | | | | | ·2 | ○ | ·1 | | | ·3 |
| 21 | | | | | | | ·4 | | | | | | 1· | | ○ | | | 2. | |
| 22 | 2· ○ | | | | | | | | | | ·4 | | | | ○ | | ·1 | 3· | |
| 23 | | | | | | | | | | | | ·2 | 3· ·1 | ·4 | ○ | | | | |
| 24 | | | | | | | | | 3· | | | | | | ○ | | 1· ·2 | ·4 | |
| 25 | | | | | | | | | | ·3 | | | | ·1 | ○ | | | 2· | |
| 26 | ·3 ● | | | | | | | | | | | | 2· | | ○ | 1· | | | |
| 27 | ·1 ● | | | | | | | | | | | | | ·2 | ○ | | | | ·3 |
| 28 | | | | | | | | | | | | | | 1· | ○ | | | | ·2 |
| 29 | | | | | | | | | | | | | | | 2○ | · | ·1 | 3· | |
| 30 | | | | | | | | | | | ·2 | 1· | 3· | | ○ | | | | |
| 31 | | | | | | | | | 3· | | | | | | ○ | ·2 | 4· 1· | | |

This Table represents, at $14^h\ 30^m$ after *Mean Noon* of each day of the month, the relative po of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the pag Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distingui Satellites from each other; and their positions are such as to indicate the directions of the lites' motions, which are in all cases to be considered as *towards the numerals.* When a Satel at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shad Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 2 | 16 43 17·3 | 1 29 47·2 | Im. |
| | 4† | 11 11 40·9 | 20 5 9·5 | Im. |
| | 6 | 5 40 6·1 | 14 40 33·3 | Im. |
| | 8 | 0 8 30·5 | 9 15 56·3 | Im. |
| | 9 | 18 36 57·9 | 3 51 22·4 | Im. |
| | 11* | 13 5 21·9 | 22 26 45·0 | Im. |
| | 13 | 7 33 47·6 | 17 2 9·3 | Im. |
| | 15 | 2 2 12·2 | 11 37 32·5 | Im. i |
| | 16 | 20 30 40·5 | 6 12 59·5 | Im. * |
| | 18* | 14 59 5·1 | 0 48 22·8 | Im. |
| | 20† | 9 27 31·3 | 19 23 47·6 | Im. |
| | 22 | 3 55 56·4 | 13 59 11·3 | Im. |
| | 23 | 22 24 25·7 | 8 34 39·3 | Im. |
| | 25† | 16 52 51·0 | 3 10 3·2 | Im. |
| | 27* | 11 21 18·4 | 21 45 29·3 | Im. |
| | 29 | 5 49 44·3 | 16 20 53·8 | Im. |
| | 31 | 0 18 14·6 | 10 56 22·8 | Im. |
| I. | 2 | 20 58 44·7 | 5 45 56·6 | Im. |
| | 2 | 23 26 4·2 | 8 13 40·3 | Em. |
| | 6† | 10 16 48·5 | 19 18 1·1 | Im. |
| | 6* | 12 44 4·9 | 21 45 41·7 | Em. |
| | 9 | 23 35 48·3 | 8 51 1·8 | Im. |
| | 10 | 2 3 1·6 | 11 18 39·3 | Em. |
| | 13* | 12 53 51·0 | 22 23 5·3 | Im. |
| | 13* | 15 21 1·2 | 0 50 39·7 | Em. i e |
| | 17 | 2 12 45·9 | 11 56 1·1 | Im. * * |
| | 17 | 4 39 52·9 | 14 23 32·2 | Em. |
| | 20* | 15 30 47·1 | 1 28 3·1 | Im. |
| | 20 | 17 57 50·5 | 3 55 30·6 | Em. |
| | 24 | 4 49 37·3 | 15 0 54·2 | Im. |
| | 24 | 7 16 37·4 | 17 28 18·4 | Em. |
| | 27 | 18 7 37·5 | 4 32 55·1 | Im. |
| | 27 | 20 34 34·2 | 7 0 16·0 | Em. |
| | 31 | 7 26 22·3 | 18 5 40·8 | Im. |
| | 31* | 9 53 16·0 | 20 32 58·6 | Em. |
| II. | 5 | 0 25 19·2 | 9 20 58·1 | Im. |
| | 5 | 2 40 15·4 | 11 36 16·4 | Em. |
| | 12 | 4 25 53·6 | 13 49 47·9 | Im. |
| | 12 | 6 40 0·9 | 16 4 17·2 | Em. |
| | 19 | 8 27 6·8 | 18 19 16·7 | Im. |
| | 19* | 10 40 27·3 | 20 32 59·0 | Em. i e |
| | 26* | 12 27 55·9 | 22 48 21·2 | Im. * * |
| | 26* | 14 40 29·5 | 1 1 16·5 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | | 1 10 28 | 1 5 38 | 1 7 50 | 1 4 13 | 1 6 27 |
| | | 2 5 4 | 3* 0 13 | 3 2 25 | 3* 22 49 | 3† 1 2 |
| | | 4* 23 39 | 5 18 49 | 5* 21 1 | 5 17 24 | 5† 19 38 |
| | | 6 18 14 | 7 13 24 | 7 15 36 | 7 12 0 | 7 14 13 |
| | | 8 12 49 | 8 8 0 | 9 10 11 | 8 6 35 | 8 8 49 |
| | In | 9 7 24 | 10 2 35 | 10 4 46 | 10† 1 11 | 10 3 24 |
| | | 11† 1 59 | 12* 21 10 | 12* 23 21 | 12† 19 47 | 12* 22 0 |
| | | 13* 20 34 | 14 15 45 | 14 17 56 | 14 14 22 | 14 16 35 |
| | | 15 15 9 | 16 10 20 | 16 12 31 | 15 8 58 | 16 11 11 |
| | the | 17 9 44 | 17 4 55 | 17 7 6 | 17 3 33 | 17 5 46 |
| | | 18 4 18 | 19* 23 30 | 19* 1 41 | 19* 22 9 | 19* 0 22 |
| | | 20* 22 53 | 21 18 4 | 21* 20 16 | 21 16 44 | 21 18 57 |
| | | 22 17 28 | 23 12 39 | 23 14 50 | 23 11 20 | 23 13 33 |
| | Shadow. | 24 12 2 | 24 7 14 | 24 9 25 | 24 5 55 | 24 8 8 |
| | | 25 6 37 | 26* 1 48 | 26 3 59 | 26* 0 31 | 26† 2 44 |
| | | 27* 1 11 | 28* 20 23 | 28* 22 34 | 28 19 6 | 28* 21 19 |
| | | 29† 19 46 | 30 14 57 | 30 17 8 | 30 13 42 | 30 15 55 |
| | | 31 14 20 | 31 9 32 | 32 11 43 | 31 8 17 | 31 10 30 |
| II. | 2 8 36 | 3 11 5 | 1 13 33 | 1 16 2 | 1 10 41 | 1 13 12 |
| | 6* 22 8 | 6* 0 36 | 4 3 4 | 4 5 32 | 4* 0 12 | 4 2 44 |
| | 10 11 40 | 10 14 8 | 8 16 34 | 8 19 2 | 8 13 43 | 8 16 15 |
| | 13* 1 10 | 13 3 38 | 11 6 4 | 11 8 32 | 11 3 14 | 11 5 46 |
| | 17 14 41 | 17 17 8 | 15† 19 34 | 15* 22 1 | 15 16 46 | 15† 19 18 |
| | 20 4 10 | 20 6 37 | 18 9 3 | 19 11 30 | 18 6 17 | 18 8 49 |
| | 24 17 39 | 24† 20 6 | 22* 22 31 | 22* 0 58 | 22† 19 49 | 22* 22 20 |
| | 27 7 7 | 27 9 34 | 26 11 59 | 26 14 26 | 25 9 20 | 26 11 52 |
| | 31* 20 35 | 31* 23 2 | 29* 1 26 | 29 3 53 | 29* 22 52 | 29* 1 23 |
| III. | 5 15 3 | 5 17 11 | 1† 0 52 | 1 3 2 | 1 19 3 | 1* 21 34 |
| | 12† 19 28 | 12* 21 34 | 8 5 20 | 8 7 27 | 8* 23 33 | 8 2 3 |
| | 19* 23 49 | 19* 1 52 | 16 9 43 | 16 11 47 | 15 4 1 | 15 6 31 |
| | 26 4 5 | 26 6 5 | 23 14 1 | 23 16 3 | 22 8 30 | 23 10 59 |
| | | | 30 18 14 | 30† 20 13 | 30 12 59 | 30 15 27 |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding $0^{d}.840658$, Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|
| | | | | h m s | | | |
| +1 ·0748 | −1 ·1962 | +9 ·9443 | +0 ·7655 | 15 17 40 ·72 | 131 | 212 | ·580 |
| 1 ·0834 | 1 ·1901 | 9 ·9456 | 0 ·7647 | 15 13 44 ·81 | 132 | 213 | ·583 |
| 1 ·0918 | 1 ·1838 | 9 ·9469 | 0 ·7639 | 15 9 48 ·90 | 133 | 214 | ·586 |
| +1 ·0999 | −1 ·1773 | +9 ·9482 | +0 ·7630 | 15 5 52 ·99 | 134 | 215 | ·589 |
| 1 ·1077 | 1 ·1706 | 9 ·9495 | 0 ·7622 | 15 1 57 ·08 | 135 | 216 | ·591 |
| 1 ·1153 | 1 ·1636 | 9 ·9508 | 0 ·7613 | 14 58 1 ·17 | 136 | 217 | ·594 |
| +1 ·1226 | −1 ·1564 | +9 ·9520 | +0 ·7605 | 14 54 5 ·27 | 137 | 218 | ·597 |
| 1 ·1297 | 1 ·1489 | 9 ·9532 | 0 ·7596 | 14 50 9 ·36 | 138 | 219 | ·600 |
| 1 ·1366 | 1 ·1412 | 9 ·9544 | 0 ·7588 | 14 46 13 ·45 | 139 | 220 | ·602 |
| +1 ·1432 | −1 ·1332 | +9 ·9556 | +0 ·7579 | 14 42 17 ·54 | 140 | 221 | ·605 |
| 1 ·1497 | 1 ·1250 | 9 ·9568 | 0 ·7570 | 14 38 21 ·63 | 141 | 222 | ·608 |
| 1 ·1559 | 1 ·1164 | 9 ·9579 | 0 ·7562 | 14 34 25 ·72 | 142 | 223 | ·611 |
| +1 ·1619 | −1 ·1076 | +9 ·9591 | +0 ·7553 | 14 30 29 ·81 | 143 | 224 | ·613 |
| 1 ·1676 | 1 ·0984 | 9 ·9602 | 0 ·7545 | 14 26 33 ·91 | 144 | 225 | ·616 |
| 1 ·1732 | 1 ·0889 | 9 ·9613 | 0 ·7537 | 14 22 38 ·00 | 145 | 226 | ·619 |
| +1 ·1787 | −1 ·0791 | +9 ·9624 | +0 ·7528 | 14 18 42 ·09 | 146 | 227 | ·621 |
| 1 ·1839 | 1 ·0690 | 9 ·9634 | 0 ·7520 | 14 14 46 ·18 | 147 | 228 | ·624 |
| 1 ·1889 | 1 ·0584 | 9 ·9645 | 0 ·7512 | 14 10 50 ·27 | 148 | 229 | ·627 |
| +1 ·1938 | −1 ·0475 | +9 ·9655 | +0 ·7505 | 14 6 54 ·36 | 149 | 230 | ·630 |
| 1 ·1985 | 1 ·0361 | 9 ·9666 | 0 ·7497 | 14 2 58 ·46 | 150 | 231 | ·632 |
| 1 ·2030 | 1 ·0243 | 9 ·9676 | 0 ·7489 | 13 59 2 ·55 | 151 | 232 | ·635 |
| +1 ·2074 | −1 ·0121 | +9 ·9686 | +0 ·7482 | 13 55 6 ·64 | 152 | 233 | ·638 |
| 1 ·2116 | 0 ·9993 | 9 ·9696 | 0 ·7475 | 13 51 10 ·73 | 153 | 234 | ·641 |
| 1 ·2156 | 0 ·9860 | 9 ·9705 | 0 ·7468 | 13 47 14 ·83 | 154 | 235 | ·643 |
| +1 ·2195 | −0 ·9722 | +9 ·9715 | +0 ·7462 | 13 43 18 ·92 | 155 | 236 | ·646 |
| 1 ·2232 | 0 ·9578 | 9 ·9725 | 0 ·7455 | 13 39 23 ·01 | 156 | 237 | ·649 |
| 1 ·2268 | 0 ·9428 | 9 ·9734 | 0 ·7449 | 13 35 27 ·10 | 157 | 238 | ·652 |
| +1 ·2302 | −0 ·9271 | +9 ·9743 | +0 ·7444 | 13 31 31 ·20 | 158 | 239 | ·654 |
| 1 ·2335 | 0 ·9106 | 9 ·9752 | 0 ·7438 | 13 27 35 ·29 | 159 | 240 | ·657 |
| 1 ·2366 | 0 ·8934 | 9 ·9761 | 0 ·7433 | 13 23 39 ·38 | 160 | 241 | ·660 |
| 1 ·2396 | 0 ·8754 | 9 ·9770 | 0 ·7428 | 13 19 43 ·48 | 161 | 242 | ·663 |
| +1 ·2424 | −0 ·8564 | +9 ·9779 | +0 ·7424 | 13 15 47 ·57 | 162 | 243 | ·665 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subtracted from Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Mon. | 1 | 10 41 51 ·48 | 9 ·070 | N.8 15 22 ·3 | 54 ·70 | 1 4 ·35 | 0 10 ·20 |
| Tues. | 2 | 10 45 29 ·17 | 9 ·059 | 7 53 29 ·6 | 55 ·01 | 1 4 ·31 | 0 29 ·00 |
| Wed. | 3 | 10 49 6 ·58 | 9 ·048 | 7 31 29 ·4 | 55 ·31 | 1 4 ·27 | 0 48 ·09 |
| Thur. | 4 | 10 52 43 ·73 | 9 ·037 | 7 9 21 ·9 | 55 ·60 | 1 4 ·24 | 1 7 ·45 |
| Frid. | 5 | 10 56 20 ·62 | 9 ·027 | 6 47 7 ·4 | 55 ·88 | 1 4 ·20 | 1 27 ·05 |
| Sat. | 6 | 10 59 57 ·27 | 9 ·018 | 6 24 46 ·4 | 56 ·14 | 1 4 ·17 | 1 46 ·90 |
| *Sun.* | 7 | 11 3 33 ·71 | 9 ·010 | 6 2 19 ·1 | 56 ·39 | 1 4 ·14 | 2 6 ·97 |
| Mon. | 8 | 11 7 9 ·94 | 9 ·002 | 5 39 45 ·8 | 56 ·62 | 1 4 ·11 | 2 27 ·23 |
| Tues. | 9 | 11 10 45 ·98 | 8 ·994 | 5 17 6 ·9 | 56 ·84 | 1 4 ·09 | 2 47 ·69 |
| Wed. | 10 | 11 14 21 ·84 | 8 ·988 | 4 54 22 ·8 | 57 ·05 | 1 4 ·07 | 3 8 ·32 |
| Thur. | 11 | 11 17 57 ·56 | 8 ·983 | 4 31 33 ·7 | 57 ·24 | 1 4 ·05 | 3 29 ·10 |
| Frid. | 12 | 11 21 33 ·15 | 8 ·979 | 4 8 39 ·9 | 57 ·42 | 1 4 ·04 | 3 50 ·00 |
| Sat. | 13 | 11 25 8 ·64 | 8 ·975 | 3 45 41 ·8 | 57 ·59 | 1 4 ·03 | 4 11 ·01 |
| *Sun.* | 14 | 11 28 44 ·04 | 8 ·972 | 3 22 39 ·7 | 57 ·74 | 1 4 ·02 | 4 32 ·10 |
| Mon. | 15 | 11 32 19 ·38 | 8 ·971 | 2 59 33 ·9 | 57 ·88 | 1 4 ·02 | 4 53 ·26 |
| Tues. | 16 | 11 35 54 ·68 | 8 ·970 | 2 36 24 ·7 | 58 ·01 | 1 4 ·01 | 5 14 ·45 |
| Wed. | 17 | 11 39 29 ·97 | 8 ·970 | 2 13 12 ·4 | 58 ·13 | 1 4 ·01 | 5 35 ·66 |
| Thur. | 18 | 11 43 5 ·26 | 8 ·972 | 1 49 57 ·3 | 58 ·23 | 1 4 ·01 | 5 56 ·86 |
| Frid. | 19 | 11 46 40 ·59 | 8 ·975 | 1 26 39 ·8 | 58 ·32 | 1 4 ·02 | 6 18 ·02 |
| Sat. | 20 | 11 50 15 ·98 | 8 ·978 | 1 3 20 ·1 | 58 ·39 | 1 4 ·02 | 6 39 ·13 |
| *Sun.* | 21 | 11 53 51 ·45 | 8 ·982 | 0 39 58 ·7 | 58 ·46 | 1 4 ·03 | 7 0 ·15 |
| Mon. | 22 | 11 57 27 ·02 | 8 ·987 | N.0 16 35 ·7 | 58 ·50 | 1 4 ·05 | 7 21 ·08 |
| Tues. | 23 | 12 1 2 ·71 | 8 ·994 | S.0 6 48 ·4 | 58 ·54 | 1 4 ·07 | 7 41 ·88 |
| Wed. | 24 | 12 4 38 ·56 | 9 ·001 | 0 30 13 ·3 | 58 ·55 | 1 4 ·09 | 8 2 ·52 |
| Thur. | 25 | 12 8 14 ·57 | 9 ·008 | 0 53 38 ·6 | 58 ·56 | 1 4 ·11 | 8 23 ·01 |
| Frid. | 26 | 12 11 50 ·77 | 9 ·017 | 1 17 4 ·1 | 58 ·55 | 1 4 ·14 | 8 43 ·30 |
| Sat. | 27 | 12 15 27 ·18 | 9 ·026 | 1 40 29 ·2 | 58 ·52 | 1 4 ·17 | 9 3 ·39 |
| *Sun.* | 28 | 12 19 3 ·81 | 9 ·036 | 2 3 53 ·7 | 58 ·48 | 1 4 ·20 | 9 23 ·27 |
| Mon. | 29 | 12 22 40 ·68 | 9 ·047 | 2 27 17 ·3 | 58 ·42 | 1 4 ·23 | 9 42 ·89 |
| Tues. | 30 | 12 26 17 ·82 | 9 ·059 | 2 50 39 ·5 | 58 ·35 | 1 4 ·27 | 10 2 ·25 |
| Wed. | 31 | 12 29 55 ·23 | | S.3 13 59 ·9 | | 1 4 ·31 | 10 21 ·34 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·18 from the *Sidere*

## AT MEAN NOON.

| Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be added to Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|
| | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| 1 | 10 41 51 ·50 | N. 8 15 22 ·1 | 15 52 ·7 | 0 10 ·20 | 10 42 1 ·70 |
| 2 | 10 45 29 ·24 | 7 53 29 ·2 | 15 53 ·0 | 0 29 ·01 | 10 45 58 ·26 |
| 3 | 10 49 6 ·70 | 7 31 28 ·7 | 15 53 ·2 | 0 48 ·11 | 10 49 54 ·81 |
| 4 | 10 52 43 ·90 | 7 9 20 ·9 | 15 53 ·4 | 1 7 ·46 | 10 53 51 ·36 |
| 5 | 10 56 20 ·84 | 6 47 6 ·1 | 15 53 ·7 | 1 27 ·07 | 10 57 47 ·91 |
| 6 | 10 59 57 ·54 | 6 24 44 ·7 | 15 53 ·9 | 1 46 ·93 | 11 1 44 ·47 |
| 7 | 11 3 34 ·02 | 6 2 17 ·1 | 15 54 ·2 | 2 7 ·00 | 11 5 41 ·02 |
| 8 | 11 7 10 ·31 | 5 39 43 ·5 | 15 54 ·4 | 2 27 ·27 | 11 9 37 ·57 |
| 9 | 11 10 46 ·40 | 5 17 4 ·3 | 15 54 ·7 | 2 47 ·73 | 11 13 34 ·12 |
| 10 | 11 14 22 ·31 | 4 54 19 ·8 | 15 55 ·0 | 3 8 ·37 | 11 17 30 ·68 |
| 11 | 11 17 58 ·08 | 4 31 30 ·3 | 15 55 ·2 | 3 29 ·15 | 11 21 27 ·23 |
| 12 | 11 21 33 ·73 | 4 8 36 ·2 | 15 55 ·5 | 3 50 ·05 | 11 25 23 ·78 |
| 13 | 11 25 9 ·26 | 3 45 37 ·8 | 15 55 ·7 | 4 11 ·07 | 11 29 20 ·38 |
| 14 | 11 28 44 ·72 | 3 22 35 ·4 | 15 56 ·0 | 4 32 ·17 | 11 33 16 ·89 |
| 15 | 11 32 20 ·11 | 2 59 29 ·2 | 15 56 ·3 | 4 53 ·33 | 11 37 13 ·44 |
| 16 | 11 35 55 ·46 | 2 36 19 ·6 | 15 56 ·5 | 5 14 ·53 | 11 41 9 ·99 |
| 17 | 11 39 30 ·80 | 2 13 7 ·0 | 15 56 ·8 | 5 35 ·74 | 11 45 6 ·54 |
| 18 | 11 43 6 ·15 | 1 49 51 ·5 | 15 57 ·1 | 5 56 ·94 | 11 49 3 ·09 |
| 19 | 11 46 41 ·54 | 1 26 33 ·6 | 15 57 ·3 | 6 18 ·11 | 11 52 59 ·65 |
| 20 | 11 50 16 ·98 | 1 3 13 ·6 | 15 57 ·6 | 6 39 ·22 | 11 56 56 ·20 |
| 21 | 11 53 52 ·49 | 0 39 51 ·8 | 15 57 ·9 | 7 0 ·25 | 12 0 52 ·75 |
| 22 | 11 57 28 ·12 | N. 0 16 28 ·5 | 15 58 ·1 | 7 21 ·18 | 12 4 49 ·30 |
| 23 | 12 1 3 ·87 | S. 0 6 55 ·9 | 15 58 ·4 | 7 41 ·99 | 12 8 45 ·85 |
| 24 | 12 4 39 ·77 | 0 30 21 ·1 | 15 58 ·6 | 8 2 ·64 | 12 12 42 ·41 |
| 25 | 12 8 15 ·83 | 0 53 46 ·8 | 15 58 ·9 | 8 23 ·13 | 12 16 38 ·96 |
| 26 | 12 11 52 ·09 | 1 17 12 ·6 | 15 59 ·2 | 8 43 ·43 | 12 20 35 ·51 |
| 27 | 12 15 28 ·54 | 1 40 38 ·1 | 15 59 ·5 | 9 3 ·52 | 12 24 32 ·06 |
| 28 | 12 19 5 ·22 | 2 4 2 ·9 | 15 59 ·7 | 9 23 ·39 | 12 28 28 ·62 |
| 29 | 12 22 42 ·15 | 2 27 26 ·7 | 16 0 ·0 | 9 43 ·02 | 12 32 25 ·17 |
| 30 | 12 26 19 ·33 | 2 50 49 ·2 | 16 0 ·3 | 10 2 ·39 | 12 36 21 ·72 |
| 31 | 12 29 56 ·79 | S. 3 14 10 ·0 | 16 0 ·5 | 10 21 ·48 | 12 40 18 ·27 |

The Semidiameter for *Apparent* Noon may be assumed the same [illegible] Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Paralla Noon. | THE MOON'S Horizontal Paralla Midnig |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ |
| 1 | 158 51 16·4 | S.0·35 | 0·0037132 | 15 4·5 | 15 8·2 | 55 19·1 | 55 32 |
| 2 | 159 49 26·5 | 0·29 | 0·0036062 | 15 12·0 | 15 16·0 | 55 46·9 | 56 1 |
| 3 | 160 47 38·2 | 0·20 | 0·0034976 | 15 20·0 | 15 24·0 | 56 16·2 | 56 31 |
| 4 | 161 45 51·6 | S.0·10 | 0·0033874 | 15 28·1 | 15 32·2 | 56 45·9 | 57 0 |
| 5 | 162 44 6·6 | N.0·02 | 0·0032756 | 15 36·2 | 15 40·2 | 57 15·7 | 57 30 |
| 6 | 163 42 23·1 | 0·15 | 0·0031624 | 15 44·1 | 15 47·9 | 57 44·6 | 57 58 |
| 7 | 164 40 41·2 | 0·29 | 0·0030478 | 15 51·7 | 15 55·4 | 58 12·5 | 58 26 |
| 8 | 165 39 0·9 | 0·42 | 0·0029321 | 15 59·0 | 16 2·5 | 58 39·4 | 58 53 |
| 9 | 166 37 22·1 | 0·54 | 0·0028154 | 16 5·8 | 16 8·8 | 59 4·2 | 59 15 |
| 10 | 167 35 44·7 | 0·64 | 0·0026979 | 16 11·5 | 16 13·9 | 59 25·3 | 59 34 |
| 11 | 168 34 9·0 | 0·72 | 0·0025798 | 16 15·8 | 16 17·1 | 59 40·9 | 59 42 |
| 12 | 169 32 34·9 | 0·77 | 0·0024611 | 16 17·9 | 16 17·9 | 59 48·5 | 59 48 |
| 13 | 170 31 2·4 | 0·79 | 0·0023421 | 16 17·2 | 16 15·7 | 59 46·1 | 59 40 |
| 14 | 171 29 31·7 | 0·79 | 0·0022228 | 16 13·4 | 16 10·4 | 59 32·3 | 59 21 |
| 15 | 172 28 2·8 | 0·75 | 0·0021033 | 16 6·7 | 16 2·3 | 59 7·6 | 58 51 |
| 16 | 173 26 35·8 | 0·68 | 0·0019838 | 15 57·3 | 15 51·9 | 58 33·2 | 58 13 |
| 17 | 174 25 10·7 | 0·59 | 0·0018641 | 15 46·0 | 15 40·0 | 57 51·7 | 57 29 |
| 18 | 175 23 47·6 | 0·48 | 0·0017445 | 15 33·8 | 15 27·6 | 57 6·8 | 56 44 |
| 19 | 176 22 26·6 | 0·35 | 0·0016248 | 15 21·6 | 15 15·8 | 56 22·0 | 56 0 |
| 20 | 177 21 7·7 | 0·22 | 0·0015050 | 15 10·2 | 15 5·1 | 55 40·2 | 55 21 |
| 21 | 178 19 51·0 | N.0·08 | 0·0013852 | 15 0·6 | 14 56·5 | 55 4·9 | 54 50 |
| 22 | 179 18 36·6 | S.0·05 | 0·0012652 | 14 53·1 | 14 50·4 | 54 37·6 | 54 27 |
| 23 | 180 17 24·4 | 0·17 | 0·0011451 | 14 48·3 | 14 47·0 | 54 19·8 | 54 14 |
| 24 | 181 16 14·6 | 0·26 | 0·0010245 | 14 46·3 | 14 46·4 | 54 12·6 | 54 12 |
| 25 | 182 15 7·0 | 0·33 | 0·0009034 | 14 47·2 | 14 48·7 | 54 15·7 | 54 21 |
| 26 | 183 14 1·8 | 0·37 | 0·0007818 | 14 50·7 | 14 53·3 | 54 28·6 | 54 38 |
| 27 | 184 12 58·8 | 0·39 | 0·0006596 | 14 56·5 | 15 0·2 | 54 49·9 | 55 3 |
| 28 | 185 11 58·0 | 0·37 | 0·0005366 | 15 4·2 | 15 8·7 | 55 18·3 | 55 34 |
| 29 | 186 10 59·5 | 0·32 | 0·0004129 | 15 13·3 | 15 18·2 | 55 51·7 | 56 9 |
| 30 | 187 10 3·1 | 0·25 | 0·0002885 | 15 23·1 | 15 28·0 | 56 27·4 | 56 43 |
| 31 | 188 9 8·8 | S.0·15 | 0·0001634 | 15 32·8 | 15 37·5 | 57 3·1 | 57 20 |

## MEAN TIME.

### THE MOON'S

| Day of the Month. | Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| 1 | 154 14 52 ·2 | 160 30 36 ·3 | S. 4 51 17 ·3 | S. 4 41 1 ·4 | 29 ·2 | ♂ |
| 2 | 166 49 13 ·2 | 173 10 42 ·1 | 4 27 14 ·2 | 4 10 0 ·9 | 0 ·6 | 0 19 ·2 |
| 3 | 179 35 1 ·4 | 186 2 9 ·1 | 3 49 29 ·3 | 3 25 51 ·0 | 1 ·6 | 1 4 ·4 |
| 4 | 192 32 3 ·9 | 199 4 45 ·4 | 2 59 20 ·1 | 2 30 14 ·0 | 2 ·6 | 1 51 ·1 |
| 5 | 205 40 14 ·5 | 212 18 33 ·9 | 1 58 51 ·9 | 1 25 37 ·5 | 3 ·6 | 2 39 ·8 |
| 6 | 218 59 47 ·2 | 225 43 59 ·6 | S. 0 50 55 ·6 | S. 0 15 13 ·4 | 4 ·6 | 3 31 ·0 |
| 7 | 232 31 17 ·2 | 239 21 46 ·1 | N. 0 20 59 ·7 | N. 0 57 13 ·0 | 5 ·6 | 4 24 ·9 |
| 8 | 246 15 31 ·8 | 253 12 38 ·4 | 1 32 54 ·2 | 2 7 30 ·6 | 6 ·6 | 5 21 ·3 |
| 9 | 260 13 6 ·8 | 267 16 55 ·3 | 2 40 28 ·5 | 3 11 14 ·3 | 7 ·6 | 6 19 ·5 |
| 10 | 274 23 56 ·2 | 281 33 56 ·7 | 3 39 16 ·0 | 4 4 2 ·5 | 8 ·6 | 7 18 ·3 |
| 11 | 288 46 37 ·1 | 296 1 30 ·7 | 4 25 4 ·9 | 4 41 58 ·6 | 9 ·6 | 8 16 ·5 |
| 12 | 303 18 4 ·0 | 310 35 36 ·7 | 4 54 22 ·8 | 5 2 2 ·0 | 10 ·6 | 9 13 ·0 |
| 13 | 317 53 22 ·5 | 325 10 31 ·9 | 5 4 46 ·5 | 5 2 34 ·5 | 11 ·6 | 10 7 ·6 |
| 14 | 332 26 11 ·9 | 339 39 30 ·5 | 4 55 29 ·3 | 4 43 42 ·7 | 12 ·6 | 11 0 ·4 |
| 15 | 346 49 37 ·1 | 353 55 45 ·5 | 4 27 31 ·7 | 4 7 19 ·0 | 13 ·6 | 11 51 ·7 |
| 16 | 0 57 15 ·0 | 7 53 33 ·2 | 3 43 31 ·6 | 3 16 40 ·1 | 14 ·6 | 12 42 ·1 |
| 17 | 14 44 15 ·5 | 21 29 5 ·9 | 2 47 16 ·6 | 2 15 53 ·5 | 15 ·6 | 13 32 ·0 |
| 18 | 28 7 57 ·7 | 34 40 52 ·3 | 1 43 3 ·5 | 1 9 17 ·6 | 16 ·6 | 14 21 ·7 |
| 19 | 41 7 59 ·0 | 47 29 34 ·3 | N. 0 35 5 ·1 | N. 0 0 53 ·1 | 17 ·6 | 15 11 ·5 |
| 20 | 53 46 0 ·2 | 59 57 44 ·3 | S. 0 32 54 ·0 | S. 1 5 53 ·9 | 18 ·6 | 16 1 ·2 |
| 21 | 66 5 17 ·7 | 72 9 15 ·0 | 1 37 47 ·2 | 2 8 15 ·9 | 19 ·6 | 16 50 ·6 |
| 22 | 78 10 12 ·9 | 84 8 49 ·2 | 2 37 4 ·4 | 3 3 58 ·4 | 20 ·6 | 17 39 ·3 |
| 23 | 90 5 42 ·6 | 96 1 32 ·3 | 3 28 44 ·7 | 3 51 11 ·6 | 21 ·6 | 18 27 ·1 |
| 24 | 101 56 56 ·1 | 107 52 31 ·6 | 4 11 7 ·5 | 4 28 22 ·5 | 22 ·6 | 19 13 ·9 |
| 25 | 113 48 54 ·4 | 119 46 38 ·3 | 4 42 46 ·2 | 4 54 9 ·2 | 23 ·6 | 19 59 ·6 |
| 26 | 125 46 15 ·0 | 131 48 13 ·1 | 5 2 22 ·8 | 5 7 18 ·5 | 24 ·6 | 20 44 ·5 |
| 27 | 137 52 57 ·8 | 144 0 50 ·9 | 5 8 49 ·6 | 5 6 49 ·5 | 25 ·6 | 21 29 ·0 |
| 28 | 150 12 10 ·7 | 156 27 10 ·5 | 5 1 13 ·6 | 4 51 59 ·4 | 26 ·6 | 22 13 ·7 |
| 29 | 162 45 59 ·9 | 169 8 43 ·8 | 4 39 6 ·7 | 4 22 37 ·5 | 27 ·6 | 22 59 ·1 |
| 30 | 175 35 23 ·1 | 182 5 54 ·9 | 4 2 37 ·3 | 3 39 15 ·3 | 28 ·6 | 23 46 ·0 |
| 31 | 188 40 12 ·5 | 195 18 6 ·7 | S. 3 12 44 ·3 | S. 2 43 20 ·7 | 0 ·0 | ♂ |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 10 17 25 ·49 | N. 5 26 2 ·3 | 105 ·48 |
| 1 | 10 19 23 ·02 | 5 15 29 ·4 | 105 ·78 |
| 2 | 10 21 20 ·56 | 5 4 54 ·7 | 106 ·08 |
| 3 | 10 23 18 ·11 | 4 54 18 ·2 | 106 ·35 |
| 4 | 10 25 15 ·69 | 4 43 40 ·1 | 106 ·63 |
| 5 | 10 27 13 ·28 | 4 33 0 ·3 | 106 ·90 |
| 6 | 10 29 10 ·90 | 4 22 18 ·9 | 107 ·15 |
| 7 | 10 31 8 ·54 | 4 11 36 ·0 | 107 ·42 |
| 8 | 10 33 6 ·21 | 4 0 51 ·5 | 107 ·67 |
| 9 | 10 35 3 ·91 | 3 50 5 ·5 | 107 ·88 |
| 10 | 10 37 1 ·64 | 3 39 18 ·2 | 108 ·13 |
| 11 | 10 38 59 ·40 | 3 28 29 ·4 | 108 ·35 |
| 12 | 10 40 57 ·20 | 3 17 39 ·3 | 108 ·57 |
| 13 | 10 42 55 ·04 | 3 6 47 ·9 | 108 ·77 |
| 14 | 10 44 52 ·92 | 2 55 55 ·3 | 108 ·97 |
| 15 | 10 46 50 ·85 | 2 45 1 ·5 | 109 ·17 |
| 16 | 10 48 48 ·82 | 2 34 6 ·5 | 109 ·35 |
| 17 | 10 50 46 ·83 | 2 23 10 ·4 | 109 ·52 |
| 18 | 10 52 44 ·90 | 2 12 13 ·3 | 109 ·70 |
| 19 | 10 54 43 ·02 | 2 1 15 ·1 | 109 ·85 |
| 20 | 10 56 41 ·20 | 1 50 16 ·0 | 110 ·00 |
| 21 | 10 58 39 ·43 | 1 39 16 ·0 | 110 ·15 |
| 22 | 11 0 37 ·72 | 1 28 15 ·1 | 110 ·30 |
| 23 | 11 2 36 ·07 | N. 1 17 13 ·3 | 110 ·42 |
| | *TUESDAY* 2. | | |
| 0 | 11 4 34 ·49 | N. 1 6 10 ·8 | 110 ·55 |
| 1 | 11 6 32 ·98 | 0 55 7 ·5 | 110 ·65 |
| 2 | 11 8 31 ·53 | 0 44 3 ·6 | 110 ·75 |
| 3 | 11 10 30 ·16 | 0 32 59 ·1 | 110 ·87 |
| 4 | 11 12 28 ·86 | 0 21 53 ·9 | 110 ·95 |
| 5 | 11 14 27 ·65 | N. 0 10 48 ·2 | 111 ·02 |
| 6 | 11 16 26 ·51 | S. 0 0 17 ·9 | 111 ·10 |
| 7 | 11 18 25 ·45 | 0 11 24 ·5 | 111 ·17 |
| 8 | 11 20 24 ·48 | 0 22 31 ·5 | 111 ·22 |
| 9 | 11 22 23 ·59 | 0 33 38 ·8 | 111 ·27 |
| 10 | 11 24 22 ·80 | 0 44 46 ·4 | 111 ·30 |
| 11 | 11 26 22 ·10 | 0 55 54 ·2 | 111 ·33 |
| 12 | 11 28 21 ·49 | 1 7 2 ·2 | 111 ·35 |
| 13 | 11 30 20 ·98 | 1 18 10 ·3 | 111 ·37 |
| 14 | 11 32 20 ·57 | 1 29 18 ·5 | 111 ·37 |
| 15 | 11 34 20 ·27 | 1 40 26 ·7 | 111 ·38 |
| 16 | 11 36 20 ·07 | 1 51 35 ·0 | 111 ·35 |
| 17 | 11 38 19 ·97 | 2 2 43 ·1 | 111 ·33 |
| 18 | 11 40 19 ·99 | 2 13 51 ·1 | 111 ·30 |
| 19 | 11 42 20 ·12 | 2 24 58 ·9 | 111 ·27 |
| 20 | 11 44 20 ·37 | 2 36 6 ·5 | 111 ·22 |
| 21 | 11 46 20 ·73 | 2 47 13 ·8 | 111 ·17 |
| 22 | 11 48 21 ·21 | 2 58 20 ·8 | 111 ·10 |
| *23* | *11 50 21 ·82* | 3 9 27 ·4 | 111 ·02 |
| *24* | *11 52 22 ·55* | S. 3 20 33 ·5 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *WEDNESDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 11 52 22 ·55 | S. 3 20 33 ·5 |
| 1 | 11 54 23 ·41 | 3 31 39 ·2 |
| 2 | 11 56 24 ·40 | 3 42 44 ·3 |
| 3 | 11 58 25 ·52 | 3 53 48 ·8 |
| 4 | 12 0 26 ·78 | 4 4 52 ·6 |
| 5 | 12 2 28 ·18 | 4 15 55 ·7 |
| 6 | 12 4 29 ·72 | 4 26 58 ·1 |
| 7 | 12 6 31 ·40 | 4 37 59 ·6 |
| 8 | 12 8 33 ·23 | 4 49 0 ·3 |
| 9 | 12 10 35 ·20 | 5 0 0 ·0 |
| 10 | 12 12 37 ·33 | 5 10 58 ·7 |
| 11 | 12 14 39 ·61 | 5 21 56 ·4 |
| 12 | 12 16 42 ·05 | 5 32 53 ·0 |
| 13 | 12 18 44 ·64 | 5 43 48 ·4 |
| 14 | 12 20 47 ·40 | 5 54 42 ·6 |
| 15 | 12 22 50 ·32 | 6 5 35 ·6 |
| 16 | 12 24 53 ·40 | 6 16 27 ·2 |
| 17 | 12 26 56 ·65 | 6 27 17 ·4 |
| 18 | 12 29 0 ·08 | 6 38 6 ·2 |
| 19 | 12 31 3 ·67 | 6 48 53 ·5 |
| 20 | 12 33 7 ·44 | 6 59 39 ·2 |
| 21 | 12 35 11 ·40 | 7 10 23 ·3 |
| 22 | 12 37 15 ·53 | 7 21 5 ·7 |
| 23 | 12 39 19 ·84 | S. 7 31 46 ·5 |
| | *THURSDAY* 4. | |
| 0 | 12 41 24 ·34 | S. 7 42 25 ·4 |
| 1 | 12 43 29 ·03 | 7 53 2 ·5 |
| 2 | 12 45 33 ·90 | 8 3 37 ·7 |
| 3 | 12 47 38 ·96 | 8 14 10 ·9 |
| 4 | 12 49 44 ·22 | 8 24 42 ·1 |
| 5 | 12 51 49 ·68 | 8 35 11 ·3 |
| 6 | 12 53 55 ·34 | 8 45 38 ·2 |
| 7 | 12 56 1 ·19 | 8 56 3 ·0 |
| 8 | 12 58 7 ·25 | 9 6 25 ·5 |
| 9 | 13 0 13 ·52 | 9 16 45 ·7 |
| 10 | 13 2 19 ·99 | 9 27 3 ·5 |
| 11 | 13 4 26 ·67 | 9 37 18 ·8 |
| 12 | 13 6 33 ·57 | 9 47 31 ·6 |
| 13 | 13 8 40 ·68 | 9 57 41 ·8 |
| 14 | 13 10 48 ·00 | 10 7 49 ·4 |
| 15 | 13 12 55 ·54 | 10 17 54 ·3 |
| 16 | 13 15 3 ·30 | 10 27 56 ·4 |
| 17 | 13 17 11 ·28 | 10 37 55 ·7 |
| 18 | 13 19 19 ·49 | 10 47 52 ·2 |
| 19 | 13 21 27 ·92 | 10 57 45 ·7 |
| 20 | 13 23 36 ·58 | 11 7 36 ·2 |
| 21 | 13 25 45 ·47 | 11 17 23 ·6 |
| 22 | 13 27 54 ·59 | 11 27 8 ·0 |
| 23 | 13 30 3 ·94 | 11 36 49 ·1 |
| 24 | 13 32 13 ·53 | S. 11 46 27 ·0 |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *FRIDAY* 5. | | | | *SUNDAY* 7. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 2 13 ·53 | S. 11 46 27 ·0 | 95 ·77 | 0 | 15 20 49 ·14 | S. 18 4 37 ·6 | 57 ·03 |
| 4 23 ·35 | 11 56 1 ·6 | 95 ·22 | 1 | 15 23 11 ·14 | 18 10 19 ·8 | 55 ·98 |
| 6 33 ·41 | 12 5 32 ·9 | 94 ·63 | 2 | 15 25 33 ·38 | 18 15 55 ·7 | 54 ·90 |
| 8 43 ·70 | 12 15 0 ·7 | 94 ·05 | 3 | 15 27 55 ·87 | 18 21 25 ·1 | 53 ·85 |
| 0 54 ·24 | 12 24 25 ·0 | 93 ·45 | 4 | 15 30 18 ·60 | 18 26 48 ·2 | 52 ·77 |
| 3 5 ·02 | 12 33 45 ·7 | 92 ·87 | 5 | 15 32 41 ·56 | 18 32 4 ·8 | 51 ·67 |
| 5 16 ·04 | 12 43 2 ·9 | 92 ·23 | 6 | 15 35 4 ·77 | 18 37 14 ·8 | 50 ·57 |
| 7 27 ·31 | 12 52 16 ·3 | 91 ·62 | 7 | 15 37 28 ·21 | 18 42 18 ·2 | 49 ·47 |
| 9 38 ·83 | 13 1 26 ·0 | 90 ·98 | 8 | 15 39 51 ·88 | 18 47 15 ·0 | 48 ·35 |
| 1 50 ·59 | 13 10 31 ·9 | 90 ·33 | 9 | 15 42 15 ·78 | 18 52 5 ·1 | 47 ·22 |
| 4 2 ·60 | 13 19 33 ·9 | 89 ·68 | 10 | 15 44 39 ·91 | 18 56 48 ·4 | 46 ·10 |
| 6 14 ·86 | 13 28 32 ·0 | 89 ·02 | 11 | 15 47 4 ·27 | 19 1 25 ·0 | 44 ·95 |
| 8 27 ·37 | 13 37 26 ·1 | 88 ·33 | 12 | 15 49 28 ·85 | 19 5 54 ·7 | 43 ·80 |
| 0 40 ·13 | 13 46 16 ·1 | 87 ·65 | 13 | 15 51 53 ·65 | 19 10 17 ·5 | 42 ·65 |
| 2 53 ·14 | 13 55 2 ·0 | 86 ·95 | 14 | 15 54 18 ·67 | 19 14 33 ·4 | 41 ·47 |
| 5 6 ·41 | 14 3 43 ·7 | 86 ·23 | 15 | 15 56 43 ·91 | 19 18 42 ·2 | 40 ·32 |
| 7 19 ·93 | 14 12 21 ·1 | 85 ·52 | 16 | 15 59 9 ·36 | 19 22 44 ·1 | 39 ·12 |
| 9 33 ·71 | 14 20 54 ·2 | 84 ·80 | 17 | 16 1 35 ·02 | 19 26 38 ·8 | 37 ·93 |
| 1 47 ·75 | 14 29 23 ·0 | 84 ·05 | 18 | 16 4 0 ·88 | 19 30 26 ·4 | 36 ·73 |
| 4 2 ·04 | 14 37 47 ·3 | 83 ·28 | 19 | 16 6 26 ·95 | 19 34 6 ·8 | 35 ·53 |
| 6 16 ·59 | 14 46 7 ·0 | 82 ·55 | 20 | 16 8 53 ·22 | 19 37 40 ·0 | 34 ·32 |
| 8 31 ·40 | 14 54 22 ·3 | 81 ·75 | 21 | 16 11 19 ·69 | 19 41 5 ·9 | 33 ·10 |
| 0 46 ·47 | 15 2 32 ·8 | 80 ·98 | 22 | 16 13 46 ·36 | 19 44 24 ·5 | 31 ·88 |
| 3 1 ·79 | S. 15 10 38 ·7 | 80 ·18 | 23 | 16 16 13 ·22 | S. 19 47 35 ·8 | 30 ·65 |
| *SATURDAY* 6. | | | | *MONDAY* 8. | | |
| 5 17 ·38 | S. 15 18 39 ·8 | 79 ·38 | 0 | 16 18 40 ·27 | S. 19 50 39 ·7 | 29 ·40 |
| 7 33 ·23 | 15 26 36 ·1 | 78 ·57 | 1 | 16 21 7 ·50 | 19 53 36 ·1 | 28 ·17 |
| 9 49 ·33 | 15 34 27 ·5 | 77 ·73 | 2 | 16 23 34 ·92 | 19 56 25 ·1 | 26 ·92 |
| 2 5 ·70 | 15 42 13 ·9 | 76 ·92 | 3 | 16 26 2 ·51 | 19 59 6 ·6 | 25 ·65 |
| 4 22 ·33 | 15 49 55 ·4 | 76 ·05 | 4 | 16 28 30 ·27 | 20 1 40 ·5 | 24 ·38 |
| 6 39 ·21 | 15 57 31 ·7 | 75 ·20 | 5 | 16 30 58 ·21 | 20 4 6 ·8 | 23 ·12 |
| 8 56 ·36 | 16 5 2 ·9 | 74 ·35 | 6 | 16 33 26 ·31 | 20 6 25 ·5 | 21 ·85 |
| 1 13 ·77 | 16 12 29 ·0 | 73 ·45 | 7 | 16 35 54 ·58 | 20 8 36 ·6 | 20 ·57 |
| 3 31 ·44 | 16 19 49 ·7 | 72 ·58 | 8 | 16 38 23 ·00 | 20 10 40 ·0 | 19 ·27 |
| 5 49 ·37 | 16 27 5 ·2 | 71 ·68 | 9 | 16 40 51 ·58 | 20 12 35 ·6 | 17 ·98 |
| 8 7 ·56 | 16 34 15 ·3 | 70 ·77 | 10 | 16 43 20 ·31 | 20 14 23 ·5 | 16 ·70 |
| 0 26 ·00 | 16 41 19 ·9 | 69 ·85 | 11 | 16 45 49 ·18 | 20 16 3 ·7 | 15 ·38 |
| 2 44 ·71 | 16 48 19 ·0 | 68 ·93 | 12 | 16 48 18 ·20 | 20 17 36 ·0 | 14 ·08 |
| 5 3 ·68 | 16 55 12 ·6 | 67 ·98 | 13 | 16 50 47 ·36 | 20 19 0 ·5 | 12 ·77 |
| 7 22 ·90 | 17 2 0 ·5 | 67 ·05 | 14 | 16 53 16 ·64 | 20 20 17 ·1 | 11 ·47 |
| 9 42 ·38 | 17 8 42 ·8 | 66 ·08 | 15 | 16 55 46 ·06 | 20 21 25 ·9 | 10 ·13 |
| 2 2 ·12 | 17 15 19 ·3 | 65 ·12 | 16 | 16 58 15 ·61 | 20 22 26 ·7 | 8 ·82 |
| 4 22 ·11 | 17 21 50 ·0 | 64 ·15 | 17 | 17 0 45 ·27 | 20 23 19 ·6 | 7 ·48 |
| 6 42 ·36 | 17 28 14 ·9 | 63 ·15 | 18 | 17 3 15 ·05 | 20 24 4 ·5 | 6 ·17 |
| 9 2 ·87 | 17 34 33 ·8 | 62 ·15 | 19 | 17 5 44 ·95 | 20 24 41 ·5 | 4 ·83 |
| 1 23 ·62 | 17 40 46 ·7 | 61 ·17 | 20 | 17 8 14 ·95 | 20 25 10 ·5 | 3 ·48 |
| 3 44 ·63 | 17 46 53 ·7 | 60 ·13 | 21 | 17 10 45 ·06 | 20 25 31 ·4 | 2 ·17 |
| 6 5 ·88 | 17 52 54 ·5 | 59 ·10 | 22 | 17 13 15 ·26 | 20 25 44 ·4 | 0 ·82 |
| 8 27 ·39 | 17 58 49 ·1 | 58 ·08 | 23 | 17 15 45 ·56 | 20 25 49 ·3 | 0 ·53 |
| 0 49 ·14 | S. 18 4 37 ·6 | | 24 | 17 18 15 ·94 | S. 20 25 46 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. |
|---|---|---|---|---|---|---|
| | *TUESDAY* 9. | | | | *THURSDAY* 11. | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ |
| 0 | 17 18 15 ·94 | S. 20 25 46 ·1 | 1 ·87 | 0 | 19 18 46 ·56 | S. 17 45 51 ·7 |
| 1 | 17 20 46 ·41 | 20 25 34 ·9 | 3 ·23 | 1 | 19 21 15 ·63 | 17 39 22 ·8 |
| 2 | 17 23 16 ·96 | 20 25 15 ·5 | 4 ·57 | 2 | 19 23 44 ·58 | 17 32 46 ·8 |
| 3 | 17 25 47 ·59 | 20 24 48 ·1 | 5 ·92 | 3 | 19 26 13 ·40 | 17 26 3 ·7 |
| 4 | 17 28 18 ·28 | 20 24 12 ·6 | 7 ·27 | 4 | 19 28 42 ·08 | 17 19 13 ·6 |
| 5 | 17 30 49 ·04 | 20 23 29 ·0 | 8 ·63 | 5 | 19 31 10 ·62 | 17 12 16 ·5 |
| 6 | 17 33 19 ·86 | 20 22 37 ·2 | 9 ·98 | 6 | 19 33 39 ·03 | 17 5 12 ·5 |
| 7 | 17 35 50 ·74 | 20 21 37 ·3 | 11 ·33 | 7 | 19 36 7 ·29 | 16 58 1 ·7 |
| 8 | 17 38 21 ·67 | 20 20 29 ·3 | 12 ·70 | 8 | 19 38 35 ·41 | 16 50 44 ·0 |
| 9 | 17 40 52 ·64 | 20 19 13 ·1 | 14 ·05 | 9 | 19 41 3 ·38 | 16 43 19 ·6 |
| 10 | 17 43 23 ·65 | 20 17 48 ·8 | 15 ·40 | 10 | 19 43 31 ·20 | 16 35 48 ·5 |
| 11 | 17 45 54 ·70 | 20 16 16 ·4 | 16 ·77 | 11 | 19 45 58 ·87 | 16 28 10 ·7 |
| 12 | 17 48 25 ·78 | 20 14 35 ·8 | 18 ·12 | 12 | 19 48 26 ·38 | 16 20 26 ·4 |
| 13 | 17 50 56 ·89 | 20 12 47 ·1 | 19 ·48 | 13 | 19 50 53 ·73 | 16 12 35 ·6 |
| 14 | 17 53 28 ·02 | 20 10 50 ·2 | 20 ·83 | 14 | 19 53 20 ·93 | 16 4 38 ·3 |
| 15 | 17 55 59 ·16 | 20 8 45 ·2 | 22 ·18 | 15 | 19 55 47 ·96 | 15 56 34 ·6 |
| 16 | 17 58 30 ·32 | 20 6 32 ·1 | 23 ·55 | 16 | 19 58 14 ·83 | 15 48 24 ·7 |
| 17 | 18 1 1 ·49 | 20 4 10 ·8 | 24 ·88 | 17 | 20 0 41 ·53 | 15 40 8 ·4 |
| 18 | 18 3 32 ·65 | 20 1 41 ·5 | 26 ·23 | 18 | 20 3 8 ·07 | 15 31 46 ·0 |
| 19 | 18 6 3 ·82 | 19 59 4 ·1 | 27 ·60 | 19 | 20 5 34 ·43 | 15 23 17 ·5 |
| 20 | 18 8 34 ·98 | 19 56 18 ·5 | 28 ·93 | 20 | 20 8 0 ·63 | 15 14 42 ·9 |
| 21 | 18 11 6 ·13 | 19 53 24 ·9 | 30 ·27 | 21 | 20 10 26 ·65 | 15 6 2 ·3 |
| 22 | 18 13 37 ·26 | 19 50 23 ·3 | 31 ·62 | 22 | 20 12 52 ·50 | 14 57 15 ·7 |
| 23 | 18 16 8 ·37 | S. 19 47 13 ·6 | 32 ·95 | 23 | 20 15 18 ·18 | S. 14 48 23 ·4 |
| | *WEDNESDAY* 10. | | | | *FRIDAY* 12. | |
| 0 | 18 18 39 ·46 | S. 19 43 55 ·9 | 34 ·28 | 0 | 20 17 43 ·68 | S. 14 39 25 ·2 |
| 1 | 18 21 10 ·52 | 19 40 30 ·2 | 35 ·62 | 1 | 20 20 9 ·00 | 14 30 21 ·3 |
| 2 | 18 23 41 ·54 | 19 36 56 ·5 | 36 ·95 | 2 | 20 22 34 ·14 | 14 21 11 ·8 |
| 3 | 18 26 12 ·52 | 19 33 14 ·8 | 38 ·27 | 3 | 20 24 59 ·11 | 14 11 56 ·8 |
| 4 | 18 28 43 ·45 | 19 29 25 ·2 | 39 ·58 | 4 | 20 27 23 ·89 | 14 2 36 ·2 |
| 5 | 18 31 14 ·34 | 19 25 27 ·7 | 40 ·92 | 5 | 20 29 48 ·49 | 13 53 10 ·2 |
| 6 | 18 33 45 ·18 | 19 21 22 ·2 | 42 ·22 | 6 | 20 32 12 ·91 | 13 43 38 ·9 |
| 7 | 18 36 15 ·96 | 19 17 8 ·9 | 43 ·52 | 7 | 20 34 37 ·14 | 13 34 2 ·3 |
| 8 | 18 38 46 ·68 | 19 12 47 ·8 | 44 ·82 | 8 | 20 37 1 ·19 | 13 24 20 ·5 |
| 9 | 18 41 17 ·33 | 19 8 18 ·9 | 46 ·12 | 9 | 20 39 25 ·06 | 13 14 33 ·6 |
| 10 | 18 43 47 ·92 | 19 3 42 ·2 | 47 ·40 | 10 | 20 41 48 ·74 | 13 4 41 ·7 |
| 11 | 18 46 18 ·43 | 18 58 57 ·8 | 48 ·70 | 11 | 20 44 12 ·23 | 12 54 44 ·8 |
| 12 | 18 48 48 ·86 | 18 54 5 ·6 | 49 ·97 | 12 | 20 46 35 ·53 | 12 44 43 ·0 |
| 13 | 18 51 19 ·21 | 18 49 5 ·8 | 51 ·25 | 13 | 20 48 58 ·65 | 12 34 36 ·4 |
| 14 | 18 53 49 ·47 | 18 43 58 ·3 | 52 ·52 | 14 | 20 51 21 ·59 | 12 24 25 ·1 |
| 15 | 18 56 19 ·65 | 18 38 43 ·2 | 53 ·78 | 15 | 20 53 44 ·34 | 12 14 9 ·2 |
| 16 | 18 58 49 ·73 | 18 33 20 ·5 | 55 ·03 | 16 | 20 56 6 ·90 | 12 3 48 ·7 |
| 17 | 19 1 19 ·71 | 18 27 50 ·3 | 56 ·27 | 17 | 20 58 29 ·27 | 11 53 23 ·6 |
| 18 | 19 3 49 ·59 | 18 22 12 ·7 | 57 ·53 | 18 | 21 0 51 ·46 | 11 42 54 ·2 |
| 19 | 19 6 19 ·37 | 18 16 27 ·5 | 58 ·75 | 19 | 21 3 13 ·46 | 11 32 20 ·5 |
| 20 | 19 8 49 ·04 | 18 10 35 ·0 | 59 ·98 | 20 | 21 5 35 ·27 | 11 21 42 ·5 |
| 21 | 19 11 18 ·59 | 18 4 35 ·1 | 61 ·20 | 21 | 21 7 56 ·90 | 11 11 0 ·3 |
| 22 | 19 13 48 ·03 | 17 58 27 ·9 | 62 ·42 | 22 | 21 10 18 ·34 | 11 0 14 ·0 |
| 23 | 19 16 17 ·36 | 17 52 13 ·4 | 63 ·62 | 23 | 21 12 39 ·59 | 10 49 23 ·7 |
| 24 | 19 18 46 ·56 | S. 17 45 51 ·7 | | 24 | 21 15 0 ·66 | S. 10 38 29 ·5 |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| t Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SATURDAY* 13. | | | | *MONDAY* 15. | | |
| m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 15 0 ·66 | S. 10 38 29 ·5 | 109 ·68 | 0 | 23 4 35 ·50 | S. 1 5 45 ·4 | 123 ·88 |
| 17 21 ·55 | 10 27 31 ·4 | 110 ·30 | 1 | 23 6 49 ·02 | 0 53 22 ·1 | 123 ·83 |
| 19 42 ·25 | 10 16 29 ·6 | 110 ·93 | 2 | 23 9 2 ·42 | 0 40 59 ·1 | 123 ·78 |
| 22 2 ·77 | 10 5 24 ·0 | 111 ·52 | 3 | 23 11 15 ·72 | 0 28 36 ·4 | 123 ·72 |
| 24 23 ·10 | 9 54 14 ·9 | 112 ·10 | 4 | 23 13 28 ·92 | 0 16 14 ·1 | 123 ·63 |
| 26 43 ·25 | 9 43 2 ·3 | 112 ·67 | 5 | 23 15 42 ·01 | S. 0 3 52 ·3 | 123 ·55 |
| 29 3 ·23 | 9 31 46 ·3 | 113 ·23 | 6 | 23 17 54 ·99 | N. 0 8 29 ·0 | 123 ·43 |
| 31 23 ·02 | 9 20 26 ·9 | 113 ·78 | 7 | 23 20 7 ·88 | 0 20 49 ·6 | 123 ·32 |
| 33 42 ·63 | 9 9 4 ·2 | 114 ·30 | 8 | 23 22 20 ·67 | 0 33 9 ·5 | 123 ·18 |
| 36 2 ·07 | 8 57 38 ·4 | 114 ·80 | 9 | 23 24 33 ·37 | 0 45 28 ·6 | 123 ·03 |
| 38 21 ·32 | 8 46 9 ·6 | 115 ·32 | 10 | 23 26 45 ·97 | 0 57 46 ·8 | 122 ·88 |
| 40 40 ·40 | 8 34 37 ·7 | 115 ·80 | 11 | 23 28 58 ·47 | 1 10 4 ·1 | 122 ·70 |
| 42 59 ·31 | 8 23 2 ·9 | 116 ·27 | 12 | 23 31 10 ·89 | 1 22 20 ·3 | 122 ·52 |
| 45 18 ·04 | 8 11 25 ·3 | 116 ·72 | 13 | 23 33 23 ·22 | 1 34 35 ·4 | 122 ·33 |
| 47 36 ·60 | 7 59 45 ·0 | 117 ·17 | 14 | 23 35 35 ·46 | 1 46 49 ·4 | 122 ·12 |
| 49 54 ·99 | 7 48 2 ·0 | 117 ·60 | 15 | 23 37 47 ·62 | 1 59 2 ·1 | 121 ·92 |
| 52 13 ·20 | 7 36 16 ·4 | 118 ·00 | 16 | 23 39 59 ·70 | 2 11 13 ·6 | 121 ·67 |
| 54 31 ·25 | 7 24 28 ·4 | 118 ·40 | 17 | 23 42 11 ·70 | 2 23 23 ·6 | 121 ·42 |
| 56 49 ·13 | 7 12 38 ·0 | 118 ·80 | 18 | 23 44 23 ·62 | 2 35 32 ·1 | 121 ·18 |
| 59 6 ·84 | 7 0 45 ·2 | 119 ·17 | 19 | 23 46 35 ·47 | 2 47 39 ·2 | 120 ·90 |
| 1 24 ·38 | 6 48 50 ·2 | 119 ·52 | 20 | 23 48 47 ·24 | 2 59 44 ·6 | 120 ·63 |
| 3 41 ·76 | 6 36 53 ·1 | 119 ·87 | 21 | 23 50 58 ·94 | 3 11 48 ·4 | 120 ·33 |
| 5 58 ·98 | 6 24 53 ·9 | 120 ·20 | 22 | 23 53 10 ·57 | 3 23 50 ·4 | 120 ·03 |
| 8 16 ·04 | S. 6 12 52 ·7 | 120 ·52 | 23 | 23 55 22 ·13 | N. 3 35 50 ·6 | 119 ·72 |
| *SUNDAY* 14. | | | | *TUESDAY* 16. | | |
| 10 32 ·94 | S. 6 0 49 ·6 | 120 ·82 | 0 | 23 57 33 ·63 | N. 3 47 48 ·9 | 119 ·40 |
| 12 49 ·69 | 5 48 44 ·7 | 121 ·10 | 1 | 23 59 45 ·06 | 3 59 45 ·3 | 119 ·05 |
| 15 6 ·28 | 5 36 38 ·1 | 121 ·38 | 2 | 0 1 56 ·43 | 4 11 39 ·6 | 118 ·72 |
| 17 22 ·71 | 5 24 29 ·8 | 121 ·63 | 3 | 0 4 7 ·74 | 4 23 31 ·9 | 118 ·35 |
| 19 39 ·00 | 5 12 20 ·0 | 121 ·88 | 4 | 0 6 19 ·00 | 4 35 22 ·0 | 117 ·98 |
| 21 55 ·13 | 5 0 8 ·7 | 122 ·12 | 5 | 0 8 30 ·19 | 4 47 9 ·9 | 117 ·62 |
| 24 11 ·11 | 4 47 56 ·0 | 122 ·33 | 6 | 0 10 41 ·33 | 4 58 55 ·6 | 117 ·20 |
| 26 26 ·95 | 4 35 42 ·0 | 122 ·53 | 7 | 0 12 52 ·41 | 5 10 38 ·8 | 116 ·82 |
| 28 42 ·64 | 4 23 26 ·8 | 122 ·73 | 8 | 0 15 3 ·45 | 5 22 19 ·7 | 116 ·40 |
| 30 58 ·19 | 4 11 10 ·4 | 122 ·90 | 9 | 0 17 14 ·43 | 5 33 58 ·1 | 115 ·97 |
| 33 13 ·60 | 3 58 53 ·0 | 123 ·05 | 10 | 0 19 25 ·37 | 5 45 33 ·9 | 115 ·53 |
| 35 28 ·86 | 3 46 34 ·7 | 123 ·22 | 11 | 0 21 36 ·26 | 5 57 7 ·1 | 115 ·10 |
| 37 43 ·99 | 3 34 15 ·4 | 123 ·33 | 12 | 0 23 47 ·10 | 6 8 37 ·7 | 114 ·63 |
| 39 58 ·98 | 3 21 55 ·4 | 123 ·47 | 13 | 0 25 57 ·90 | 6 20 5 ·5 | 114 ·18 |
| 42 13 ·84 | 3 9 34 ·6 | 123 ·57 | 14 | 0 28 8 ·66 | 6 31 30 ·6 | 113 ·70 |
| 44 28 ·57 | 2 57 13 ·2 | 123 ·67 | 15 | 0 30 19 ·39 | 6 42 52 ·8 | 113 ·20 |
| 46 43 ·17 | 2 44 51 ·2 | 123 ·73 | 16 | 0 32 30 ·07 | 6 54 12 ·0 | 112 ·72 |
| 48 57 ·64 | 2 32 28 ·8 | 123 ·80 | 17 | 0 34 40 ·72 | 7 5 28 ·3 | 112 ·22 |
| 51 11 ·98 | 2 20 6 ·0 | 123 ·87 | 18 | 0 36 51 ·33 | 7 16 41 ·6 | 111 ·70 |
| 53 26 ·20 | 2 7 42 ·8 | 123 ·88 | 19 | 0 39 1 ·91 | 7 27 51 ·8 | 111 ·17 |
| 55 40 ·29 | 1 55 19 ·5 | 123 ·92 | 20 | 0 41 12 ·45 | 7 38 58 ·8 | 110 ·63 |
| 57 54 ·27 | 1 42 56 ·0 | 123 ·93 | 21 | 0 43 22 ·97 | 7 50 2 ·6 | 110 ·08 |
| 0 8 ·13 | 1 30 32 ·4 | 123 ·92 | 22 | 0 45 33 ·45 | 8 1 3 ·1 | 109 ·55 |
| 2 21 ·87 | 1 18 8 ·9 | 123 ·92 | 23 | 0 47 43 ·91 | 8 12 0 ·4 | 108 ·97 |
| 4 35 ·50 | S. 1 5 45 ·4 | | 24 | 0 49 54 ·34 | N. 8 22 54 ·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 49 54 ·34 | N. 8 22 54 ·2 | 108 ·40 |
| 1 | 0 52 4 ·75 | 8 33 44 ·6 | 107 ·82 |
| 2 | 0 54 15 ·13 | 8 44 31 ·5 | 107 ·23 |
| 3 | 0 56 25 ·49 | 8 55 14 ·9 | 106 ·62 |
| 4 | 0 58 35 ·83 | 9 5 54 ·6 | 106 ·03 |
| 5 | 1 0 46 ·15 | 9 16 30 ·8 | 105 ·40 |
| 6 | 1 2 56 ·45 | 9 27 3 ·2 | 104 ·78 |
| 7 | 1 5 6 ·73 | 9 37 31 ·9 | 104 ·15 |
| 8 | 1 7 16 ·99 | 9 47 56 ·8 | 103 ·50 |
| 9 | 1 9 27 ·24 | 9 58 17 ·8 | 102 ·85 |
| 10 | 1 11 37 ·48 | 10 8 34 ·9 | 102 ·20 |
| 11 | 1 13 47 ·70 | 10 18 48 ·1 | 101 ·53 |
| 12 | 1 15 57 ·91 | 10 28 57 ·3 | 100 ·87 |
| 13 | 1 18 8 ·11 | 10 39 2 ·5 | 100 ·17 |
| 14 | 1 20 18 ·30 | 10 49 3 ·5 | 99 ·50 |
| 15 | 1 22 28 ·48 | 10 59 0 ·5 | 98 ·78 |
| 16 | 1 24 38 ·65 | 11 8 53 ·2 | 98 ·08 |
| 17 | 1 26 48 ·82 | 11 18 41 ·7 | 97 ·38 |
| 18 | 1 28 58 ·97 | 11 28 26 ·0 | 96 ·65 |
| 19 | 1 31 9 ·12 | 11 38 5 ·9 | 95 ·93 |
| 20 | 1 33 19 ·27 | 11 47 41 ·5 | 95 ·18 |
| 21 | 1 35 29 ·40 | 11 57 12 ·6 | 94 ·47 |
| 22 | 1 37 39 ·54 | 12 6 39 ·4 | 93 ·70 |
| 23 | 1 39 49 ·67 | N.12 16 1 ·6 | 92 ·95 |
| | *THURSDAY* 18. | | |
| 0 | 1 41 59 ·80 | N.12 25 19 ·3 | 92 ·18 |
| 1 | 1 44 9 ·93 | 12 34 32 ·4 | 91 ·43 |
| 2 | 1 46 20 ·05 | 12 43 41 ·0 | 90 ·63 |
| 3 | 1 48 30 ·18 | 12 52 44 ·8 | 89 ·87 |
| 4 | 1 50 40 ·30 | 13 1 44 ·0 | 89 ·08 |
| 5 | 1 52 50 ·42 | 13 10 38 ·5 | 88 ·28 |
| 6 | 1 55 0 ·55 | 13 19 28 ·2 | 87 ·48 |
| 7 | 1 57 10 ·67 | 13 28 13 ·1 | 86 ·68 |
| 8 | 1 59 20 ·79 | 13 36 53 ·2 | 85 ·85 |
| 9 | 2 1 30 ·92 | 13 45 28 ·3 | 85 ·05 |
| 10 | 2 3 41 ·04 | 13 53 58 ·6 | 84 ·23 |
| 11 | 2 5 51 ·17 | 14 2 24 ·0 | 83 ·40 |
| 12 | 2 8 1 ·30 | 14 10 44 ·4 | 82 ·57 |
| 13 | 2 10 11 ·43 | 14 18 59 ·8 | 81 ·72 |
| 14 | 2 12 21 ·57 | 14 27 10 ·1 | 80 ·88 |
| 15 | 2 14 31 ·70 | 14 35 15 ·4 | 80 ·03 |
| 16 | 2 16 41 ·84 | 14 43 15 ·6 | 79 ·17 |
| 17 | 2 18 51 ·98 | 14 51 10 ·6 | 78 ·32 |
| 18 | 2 21 2 ·13 | 14 59 0 ·5 | 77 ·45 |
| 19 | 2 23 12 ·27 | 15 6 45 ·2 | 76 ·57 |
| 20 | 2 25 22 ·42 | 15 14 24 ·6 | 75 ·72 |
| 21 | 2 27 32 ·57 | 15 21 58 ·9 | 74 ·82 |
| 22 | 2 29 42 ·72 | 15 29 27 ·8 | 73 ·95 |
| 23 | 2 31 52 ·87 | 15 36 51 ·5 | 73 ·05 |
| 24 | 2 34 3 ·03 | N.15 44 9 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 19. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 2 34 3 ·03 | N.15 44 9 ·8 | 72 ·17 |
| 1 | 2 36 13 ·19 | 15 51 22 ·8 | 71 ·27 |
| 2 | 2 38 23 ·35 | 15 58 30 ·4 | 70 ·37 |
| 3 | 2 40 33 ·51 | 16 5 32 ·6 | 69 ·48 |
| 4 | 2 42 43 ·67 | 16 12 29 ·3 | 68 ·58 |
| 5 | 2 44 53 ·82 | 16 19 20 ·6 | 67 ·68 |
| 6 | 2 47 3 ·98 | 16 26 6 ·5 | 66 ·78 |
| 7 | 2 49 14 ·14 | 16 32 46 ·8 | 65 ·88 |
| 8 | 2 51 24 ·30 | 16 39 21 ·6 | 64 ·98 |
| 9 | 2 53 34 ·45 | 16 45 50 ·9 | 63 ·98 |
| 10 | 2 55 44 ·60 | 16 52 14 ·6 | 63 ·03 |
| 11 | 2 57 54 ·75 | 16 58 32 ·8 | 62 ·08 |
| 12 | 3 0 4 ·90 | 17 4 45 ·3 | 61 ·13 |
| 13 | 3 2 15 ·04 | 17 10 52 ·2 | 60 ·22 |
| 14 | 3 4 25 ·18 | 17 16 53 ·5 | 59 ·27 |
| 15 | 3 6 35 ·31 | 17 22 49 ·1 | 58 ·33 |
| 16 | 3 8 45 ·44 | 17 28 39 ·1 | 57 ·37 |
| 17 | 3 10 55 ·56 | 17 34 23 ·3 | 56 ·43 |
| 18 | 3 13 5 ·67 | 17 40 1 ·9 | 55 ·47 |
| 19 | 3 15 15 ·77 | 17 45 34 ·7 | 54 ·52 |
| 20 | 3 17 25 ·87 | 17 51 1 ·8 | 53 ·55 |
| 21 | 3 19 35 ·95 | 17 56 23 ·1 | 52 ·60 |
| 22 | 3 21 46 ·02 | 18 1 38 ·7 | 51 ·63 |
| 23 | 3 23 56 ·08 | N.18 6 48 ·5 | 50 ·67 |
| | *SATURDAY* 20. | | |
| 0 | 3 26 6 ·13 | N.18 11 52 ·5 | 49 ·70 |
| 1 | 3 28 16 ·17 | 18 16 50 ·7 | 48 ·73 |
| 2 | 3 30 26 ·19 | 18 21 43 ·1 | 47 ·77 |
| 3 | 3 32 36 ·20 | 18 26 29 ·7 | 46 ·78 |
| 4 | 3 34 46 ·19 | 18 31 10 ·4 | 45 ·82 |
| 5 | 3 36 56 ·16 | 18 35 45 ·3 | 44 ·83 |
| 6 | 3 39 6 ·12 | 18 40 14 ·3 | 43 ·85 |
| 7 | 3 41 16 ·06 | 18 44 37 ·4 | 42 ·88 |
| 8 | 3 43 25 ·97 | 18 48 54 ·7 | 41 ·90 |
| 9 | 3 45 35 ·87 | 18 53 6 ·1 | 40 ·90 |
| 10 | 3 47 45 ·74 | 18 57 11 ·5 | 39 ·93 |
| 11 | 3 49 55 ·59 | 19 1 11 ·1 | 38 ·95 |
| 12 | 3 52 5 ·41 | 19 5 4 ·8 | 37 ·95 |
| 13 | 3 54 15 ·21 | 19 8 52 ·5 | 36 ·98 |
| 14 | 3 56 24 ·98 | 19 12 34 ·4 | 35 ·98 |
| 15 | 3 58 34 ·73 | 19 16 10 ·3 | 35 ·00 |
| 16 | 4 0 44 ·44 | 19 19 40 ·3 | 34 ·00 |
| 17 | 4 2 54 ·13 | 19 23 4 ·3 | 33 ·02 |
| 18 | 4 5 3 ·78 | 19 26 22 ·4 | 32 ·03 |
| 19 | 4 7 13 ·40 | 19 29 34 ·5 | 31 ·03 |
| 20 | 4 9 22 ·98 | 19 32 40 ·7 | 30 ·05 |
| 21 | 4 11 32 ·53 | 19 35 41 ·0 | 29 ·05 |
| 22 | 4 13 42 ·05 | 19 38 35 ·3 | 28 ·07 |
| 23 | 4 15 51 ·53 | 19 41 23 ·7 | 27 ·07 |
| 24 | 4 18 0 ·97 | N.19 44 6 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 4 18 0·97 | N.19 44 6·1 | 26·08 |
| 1 | 4 20 10·37 | 19 46 42·6 | 25·08 |
| 2 | 4 22 19·73 | 19 49 13·1 | 24·08 |
| 3 | 4 24 29·04 | 19 51 37·6 | 23·12 |
| 4 | 4 26 38·31 | 19 53 56·3 | 22·10 |
| 5 | 4 28 47·54 | 19 56 8·9 | 21·12 |
| 6 | 4 30 56·72 | 19 58 15·6 | 20·13 |
| 7 | 4 33 5·85 | 20 0 16·4 | 19·13 |
| 8 | 4 35 14·93 | 20 2 11·2 | 18·15 |
| 9 | 4 37 23·97 | 20 4 0·1 | 17·15 |
| 10 | 4 39 32·95 | 20 5 43·0 | 16·17 |
| 11 | 4 41 41·88 | 20 7 20·0 | 15·18 |
| 12 | 4 43 50·75 | 20 8 51·1 | 14·18 |
| 13 | 4 45 59·57 | 20 10 16·2 | 13·20 |
| 14 | 4 48 8·33 | 20 11 35·4 | 12·22 |
| 15 | 4 50 17·04 | 20 12 48·7 | 11·23 |
| 16 | 4 52 25·68 | 20 13 56·1 | 10·25 |
| 17 | 4 54 34·27 | 20 14 57·6 | 9·27 |
| 18 | 4 56 42·79 | 20 15 53·2 | 8·27 |
| 19 | 4 58 51·25 | 20 16 42·8 | 7·30 |
| 20 | 5 0 59·65 | 20 17 26·6 | 6·33 |
| 21 | 5 3 7·99 | 20 18 4·6 | 5·33 |
| 22 | 5 5 16·26 | 20 18 36·6 | 4·37 |
| 23 | 5 7 24·46 | N.20 19 2·8 | 3·38 |
| | *MONDAY* 22. | | |
| 0 | 5 9 32·59 | N.20 19 23·1 | 2·42 |
| 1 | 5 11 40·65 | 20 19 37·6 | 1·43 |
| 2 | 5 13 48·64 | 20 19 46·2 | 0·48 |
| 3 | 5 15 56·56 | 20 19 49·1 | 0·50 |
| 4 | 5 18 4·41 | 20 19 46·1 | 1·47 |
| 5 | 5 20 12·18 | 20 19 37·3 | 2·43 |
| 6 | 5 22 19·87 | 20 19 22·7 | 3·38 |
| 7 | 5 24 27·49 | 20 19 2·4 | 4·37 |
| 8 | 5 26 35·03 | 20 18 36·2 | 5·32 |
| 9 | 5 28 42·49 | 20 18 4·3 | 6·27 |
| 10 | 5 30 49·87 | 20 17 26·7 | 7·23 |
| 11 | 5 32 57·17 | 20 16 43·3 | 8·18 |
| 12 | 5 35 4·39 | 20 15 54·2 | 9·13 |
| 13 | 5 37 11·53 | 20 14 59·4 | 10·08 |
| 14 | 5 39 18·58 | 20 13 58·9 | 11·03 |
| 15 | 5 41 25·54 | 20 12 52·7 | 11·98 |
| 16 | 5 43 32·42 | 20 11 40·8 | 12·92 |
| 17 | 5 45 39·21 | 20 10 23·3 | 13·85 |
| 18 | 5 47 45·92 | 20 9 0·2 | 14·80 |
| 19 | 5 49 52·54 | 20 7 31·4 | 15·73 |
| 20 | 5 51 59·06 | 20 5 57·0 | 16·67 |
| 21 | 5 54 5·50 | 20 4 17·0 | 17·60 |
| 22 | 5 56 11·84 | 20 2 31·4 | 18·52 |
| 23 | 5 58 18·10 | 20 0 40·3 | 19·45 |
| 24 | 6 0 24·26 | N.19 58 43·6 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 0 24·26 | N.19 58 43·6 | 20·37 |
| 1 | 6 2 30·33 | 19 56 41·4 | 21·30 |
| 2 | 6 4 36·30 | 19 54 33·6 | 22·20 |
| 3 | 6 6 42·18 | 19 52 20·4 | 23·13 |
| 4 | 6 8 47·97 | 19 50 1·6 | 24·03 |
| 5 | 6 10 53·66 | 19 47 37·4 | 24·93 |
| 6 | 6 12 59·25 | 19 45 7·8 | 25·85 |
| 7 | 6 15 4·75 | 19 42 32·7 | 26·75 |
| 8 | 6 17 10·14 | 19 39 52·2 | 27·65 |
| 9 | 6 19 15·44 | 19 37 6·3 | 28·53 |
| 10 | 6 21 20·65 | 19 34 15·1 | 29·43 |
| 11 | 6 23 25·75 | 19 31 18·5 | 30·33 |
| 12 | 6 25 30·75 | 19 28 16·5 | 31·22 |
| 13 | 6 27 35·65 | 19 25 9·2 | 32·08 |
| 14 | 6 29 40·45 | 19 21 56·7 | 32·97 |
| 15 | 6 31 45·15 | 19 18 38·9 | 33·85 |
| 16 | 6 33 49·75 | 19 15 15·8 | 34·73 |
| 17 | 6 35 54·24 | 19 11 47·4 | 35·58 |
| 18 | 6 37 58·63 | 19 8 13·9 | 36·47 |
| 19 | 6 40 2·92 | 19 4 35·1 | 37·32 |
| 20 | 6 42 7·11 | 19 0 51·2 | 38·18 |
| 21 | 6 44 11·20 | 18 57 2·1 | 39·03 |
| 22 | 6 46 15·18 | 18 53 7·9 | 39·90 |
| 23 | 6 48 19·06 | N.18 49 8·5 | 40·73 |
| | *WEDNESDAY* 24. | | |
| 0 | 6 50 22·84 | N.18 45 4·1 | 41·58 |
| 1 | 6 52 26·51 | 18 40 54·6 | 42·43 |
| 2 | 6 54 30·09 | 18 36 40·0 | 43·27 |
| 3 | 6 56 33·56 | 18 32 20·4 | 44·12 |
| 4 | 6 58 36·92 | 18 27 55·7 | 44·93 |
| 5 | 7 0 40·18 | 18 23 26·1 | 45·75 |
| 6 | 7 2 43·34 | 18 18 51·6 | 46·60 |
| 7 | 7 4 46·40 | 18 14 12·0 | 47·40 |
| 8 | 7 6 49·36 | 18 9 27·6 | 48·22 |
| 9 | 7 8 52·21 | 18 4 38·3 | 49·03 |
| 10 | 7 10 54·96 | 17 59 44·1 | 49·85 |
| 11 | 7 12 57·61 | 17 54 45·0 | 50·65 |
| 12 | 7 15 0·15 | 17 49 41·1 | 51·45 |
| 13 | 7 17 2·59 | 17 44 32·4 | 52·25 |
| 14 | 7 19 4·93 | 17 39 18·9 | 53·03 |
| 15 | 7 21 7·17 | 17 34 0·7 | 53·82 |
| 16 | 7 23 9·31 | 17 28 37·8 | 54·62 |
| 17 | 7 25 11·35 | 17 23 10·1 | 55·38 |
| 18 | 7 27 13·29 | 17 17 37·8 | 56·17 |
| 19 | 7 29 15·14 | 17 12 0·8 | 56·95 |
| 20 | 7 31 16·88 | 17 6 19·1 | 57·70 |
| 21 | 7 33 18·52 | 17 0 32·9 | 58·48 |
| 22 | 7 35 20·07 | 16 54 42·0 | 59·23 |
| 23 | 7 37 21·52 | 16 48 46·6 | 59·98 |
| 24 | 7 39 22·88 | N.16 42 46·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 7 39 22·88 | N.16 42 46·7 | 60·73 |
| 1 | 7 41 24·14 | 16 36 42·3 | 61·48 |
| 2 | 7 43 25·30 | 16 30 33·4 | 62·23 |
| 3 | 7 45 26·37 | 16 24 20·0 | 62·97 |
| 4 | 7 47 27·34 | 16 18 2·2 | 63·70 |
| 5 | 7 49 28·23 | 16 11 40·0 | 64·43 |
| 6 | 7 51 29·02 | 16 5 13·4 | 65·17 |
| 7 | 7 53 29·71 | 15 58 42·4 | 65·88 |
| 8 | 7 55 30·32 | 15 52 7·1 | 66·60 |
| 9 | 7 57 30·84 | 15 45 27·5 | 67·30 |
| 10 | 7 59 31·27 | 15 38 43·7 | 68·03 |
| 11 | 8 1 31·62 | 15 31 55·5 | 68·72 |
| 12 | 8 3 31·88 | 15 25 3·2 | 69·42 |
| 13 | 8 5 32·05 | 15 18 6·7 | 70·13 |
| 14 | 8 7 32·14 | 15 11 5·9 | 70·80 |
| 15 | 8 9 32·14 | 15 4 1·1 | 71·50 |
| 16 | 8 11 32·07 | 14 56 52·1 | 72·17 |
| 17 | 8 13 31·91 | 14 49 39·1 | 72·85 |
| 18 | 8 15 31·67 | 14 42 22·0 | 73·53 |
| 19 | 8 17 31·35 | 14 35 0·8 | 74·18 |
| 20 | 8 19 30·95 | 14 27 35·7 | 74·87 |
| 21 | 8 21 30·48 | 14 20 6·5 | 75·50 |
| 22 | 8 23 29·94 | 14 12 33·5 | 76·17 |
| 23 | 8 25 29·32 | N.14 4 56·5 | 76·82 |
| | *FRIDAY* 26. | | |
| 0 | 8 27 28·63 | N.13 57 15·6 | 77·45 |
| 1 | 8 29 27·87 | 13 49 30·9 | 78·10 |
| 2 | 8 31 27·03 | 13 41 42·3 | 78·72 |
| 3 | 8 33 26·13 | 13 33 50·0 | 79·37 |
| 4 | 8 35 25·16 | 13 25 53·8 | 79·97 |
| 5 | 8 37 24·13 | 13 17 54·0 | 80·60 |
| 6 | 8 39 23·03 | 13 9 50·4 | 81·22 |
| 7 | 8 41 21·87 | 13 1 43·1 | 81·82 |
| 8 | 8 43 20·65 | 12 53 32·2 | 82·43 |
| 9 | 8 45 19·37 | 12 45 17·6 | 83·02 |
| 10 | 8 47 18·03 | 12 36 59·5 | 83·62 |
| 11 | 8 49 16·64 | 12 28 37·8 | 84·22 |
| 12 | 8 51 15·19 | 12 20 12·5 | 84·80 |
| 13 | 8 53 13·69 | 12 11 43·7 | 85·37 |
| 14 | 8 55 12·13 | 12 3 11·5 | 85·95 |
| 15 | 8 57 10·53 | 11 54 35·8 | 86·52 |
| 16 | 8 59 8·87 | 11 45 56·7 | 87·08 |
| 17 | 9 1 7·17 | 11 37 14·2 | 87·63 |
| 18 | 9 3 5·43 | 11 28 28·4 | 88·20 |
| 19 | 9 5 3·64 | 11 19 39·2 | 88·73 |
| 20 | 9 7 1·81 | 11 10 46·8 | 89·28 |
| 21 | 9 8 59·94 | 11 1 51·1 | 89·82 |
| 22 | 9 10 58·03 | 10 52 52·2 | 90·35 |
| 23 | 9 12 56·09 | 10 43 50·1 | 90·87 |
| 24 | 9 14 54·11 | N.10 34 44·9 | |

| Hour. | Right Ascension. | Declination. | Di fo |
|---|---|---|---|
| | *SATURDAY* 27. | | |
| | h m s | ° ′ ″ | |
| 0 | 9 14 54·11 | N.10 34 44·9 | 9 |
| 1 | 9 16 52·10 | 10 25 36·6 | 9 |
| 2 | 9 18 50·06 | 10 16 25·1 | 9 |
| 3 | 9 20 48·00 | 10 7 10·6 | 9 |
| 4 | 9 22 45·90 | 9 57 53·1 | 9 |
| 5 | 9 24 43·79 | 9 48 32·6 | 9 |
| 6 | 9 26 41·65 | 9 39 9·2 | 9 |
| 7 | 9 28 39·49 | 9 29 42·8 | 9 |
| 8 | 9 30 37·31 | 9 20 13·6 | 9 |
| 9 | 9 32 35·12 | 9 10 41·4 | 9 |
| 10 | 9 34 32·91 | 9 1 6·5 | 9 |
| 11 | 9 36 30·69 | 8 51 28·8 | 9 |
| 12 | 9 38 28·46 | 8 41 48·4 | 9 |
| 13 | 9 40 26·22 | 8 32 5·2 | 9 |
| 14 | 9 42 23·98 | 8 22 19·4 | 9 |
| 15 | 9 44 21·74 | 8 12 31·0 | 9 |
| 16 | 9 46 19·49 | 8 2 39·9 | 9 |
| 17 | 9 48 17·24 | 7 52 46·3 | 9 |
| 18 | 9 50 15·00 | 7 42 50·1 | 9 |
| 19 | 9 52 12·76 | 7 32 51·4 | 10 |
| 20 | 9 54 10·53 | 7 22 50·3 | 10 |
| 21 | 9 56 8·31 | 7 12 46·8 | 10 |
| 22 | 9 58 6·10 | 7 2 40·9 | 10 |
| 23 | 10 0 3·90 | N. 6 52 32·7 | 10 |
| | *SUNDAY* 28. | | |
| 0 | 10 2 1·72 | N. 6 42 22·1 | 10 |
| 1 | 10 3 59·56 | 6 32 9·3 | 10 |
| 2 | 10 5 57·42 | 6 21 54·3 | 10 |
| 3 | 10 7 55·31 | 6 11 37·0 | 10 |
| 4 | 10 9 53·22 | 6 1 17·7 | 10 |
| 5 | 10 11 51·15 | 5 50 56·2 | 10 |
| 6 | 10 13 49·12 | 5 40 32·7 | 10 |
| 7 | 10 15 47·12 | 5 30 7·1 | 10 |
| 8 | 10 17 45·15 | 5 19 39·5 | 10 |
| 9 | 10 19 43·22 | 5 9 10·1 | 10 |
| 10 | 10 21 41·33 | 4 58 38·7 | 10 |
| 11 | 10 23 39·48 | 4 48 5·4 | 10 |
| 12 | 10 25 37·68 | 4 37 30·3 | 10 |
| 13 | 10 27 35·93 | 4 26 53·4 | 10 |
| 14 | 10 29 34·22 | 4 16 14·8 | 10 |
| 15 | 10 31 32·56 | 4 5 34·5 | 10 |
| 16 | 10 33 30·96 | 3 54 52·6 | 10 |
| 17 | 10 35 29·42 | 3 44 9·0 | 10 |
| 18 | 10 37 27·94 | 3 33 23·9 | 10 |
| 19 | 10 39 26·51 | 3 22 37·2 | 10 |
| 20 | 10 41 25·15 | 3 11 49·1 | 10 |
| 21 | 10 43 23·86 | 3 0 59·6 | 10 |
| 22 | 10 45 22·64 | 2 50 8·6 | 10 |
| 23 | 10 47 21·49 | 2 39 16·4 | 10 |
| 24 | 10 49 20·41 | N. 2 28 22·8 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *MONDAY* 29. | | | | *TUESDAY* 30. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 10 49 20·41 | N.2 28 22·8 | 109·13 | 0 | 11 37 23·40 | S.1 57 26·2 | 111·68 |
| 10 51 19·41 | 2 17 28·0 | 109·33 | 1 | 11 39 25·00 | 2 8 36·3 | 111·67 |
| 10 53 18·49 | 2 6 32·0 | 109·53 | 2 | 11 41 26·75 | 2 19 46·3 | 111·67 |
| 10 55 17·65 | 1 55 34·8 | 109·72 | 3 | 11 43 28·63 | 2 30 56·3 | 111·65 |
| 10 57 16·89 | 1 44 36·5 | 109·90 | 4 | 11 45 30·66 | 2 42 6·2 | 111·62 |
| 10 59 16·23 | 1 33 37·1 | 110·05 | 5 | 11 47 32·84 | 2 53 15·9 | 111·57 |
| 11 1 15·65 | 1 22 36·8 | 110·22 | 6 | 11 49 35·17 | 3 4 25·3 | 111·53 |
| 11 3 15·16 | 1 11 35·5 | 110·38 | 7 | 11 51 37·65 | 3 15 34·5 | 111·47 |
| 11 5 14·77 | 1 0 33·2 | 110·52 | 8 | 11 53 40·28 | 3 26 43·3 | 111·40 |
| 11 7 14·47 | 0 49 30·1 | 110·65 | 9 | 11 55 43·07 | 3 37 51·7 | 111·33 |
| 11 9 14·28 | 0 38 26·2 | 110·78 | 10 | 11 57 46·02 | 3 48 59·7 | 111·23 |
| 11 11 14·18 | 0 27 21·5 | 110·90 | 11 | 11 59 49·13 | 4 0 7·1 | 111·13 |
| 11 13 14·19 | 0 16 16·1 | 111·02 | 12 | 12 1 52·41 | 4 11 13·9 | 111·03 |
| 11 15 14·31 | N.0 5 10·0 | 111·12 | 13 | 12 3 55·86 | 4 22 20·1 | 110·92 |
| 11 17 14·53 | S.0 5 56·7 | 111·20 | 14 | 12 5 59·47 | 4 33 25·6 | 110·78 |
| 11 19 14·87 | 0 17 3·9 | 111·30 | 15 | 12 8 3·26 | 4 44 30·3 | 110·67 |
| 11 21 15·33 | 0 28 11·7 | 111·37 | 16 | 12 10 7·22 | 4 55 34·3 | 110·50 |
| 11 23 15·90 | 0 39 19·9 | 111·45 | 17 | 12 12 11·36 | 5 6 37·3 | 110·35 |
| 11 25 16·59 | 0 50 28·6 | 111·50 | 18 | 12 14 15·67 | 5 17 39·4 | 110·18 |
| 11 27 17·41 | 1 1 37·6 | 111·55 | 19 | 12 16 20·17 | 5 28 40·5 | 110·00 |
| 11 29 18·35 | 1 12 46·9 | 111·60 | 20 | 12 18 24·85 | 5 39 40·5 | 109·82 |
| 11 31 19·41 | 1 23 56·5 | 111·62 | 21 | 12 20 29·72 | 5 50 39·4 | 109·63 |
| 11 33 20·61 | 1 35 6·2 | 111·67 | 22 | 12 22 34·77 | 6 1 37·2 | 109·40 |
| 11 35 21·94 | 1 46 16·2 | 111·67 | 23 | 12 24 40·02 | 6 12 33·6 | 109·20 |
| 11 37 23·40 | S.1 57 26·2 | | 24 | 12 26 45·46 | S.6 23 28·8 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ● New Moon | 1 9 34·6 |
| ☽ *First Quarter* | 8 17 23·9 |
| ○ Full Moon | 15 10 13·4 |
| ☾ *Last Quarter* | 23 0 25·8 |
| ● New Moon | 30 22 58·9 |

| | d h |
|---|---|
| ☾ Perigee | 12 6 |
| ☾ Apogee | 24 5 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III$^h$. | P. L. of diff. | VI$^h$. | P. L. of diff. | IX$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 4 | Sun | W. | 30 54 3 | 3029 | 32 23 40 | 3016 | 33 53 33 | 3002 | 35 23 43 | 2989 |
| | Antares | E. | 54 58 4 | 2677 | 53 20 53 | 2671 | 51 43 34 | 2663 | 50 6 5 | 2657 |
| | Saturn | E. | 121 3 18 | 2652 | 119 25 34 | 2643 | 117 47 37 | 2633 | 116 9 27 | 2624 |
| 5 | Sun | W. | 42 58 20 | 2931 | 44 29 59 | 2922 | 46 1 50 | 2910 | 47 33 56 | 2900 |
| | Venus | W. | 13 17 1 | 3143 | 14 44 18 | 3105 | 16 12 21 | 3074 | 17 41 3 | 3048 |
| | Antares | E. | 41 56 39 | 2629 | 40 18 24 | 2625 | 38 40 3 | 2622 | 37 1 38 | 2618 |
| | α Aquilæ | E. | 94 24 2 | 2983 | 92 53 28 | 2973 | 91 22 41 | 2963 | 89 51 42 | 2953 |
| | Saturn | E. | 107 55 29 | 2579 | 106 16 5 | 2569 | 104 36 28 | 2561 | 102 56 39 | 2552 |
| | Mars | E. | 115 21 28 | 2624 | 113 43 6 | 2613 | 112 4 29 | 2603 | 110 25 38 | 2593 |
| 6 | Sun | W. | 55 17 40 | 2850 | 56 51 3 | 2840 | 58 24 39 | 2830 | 59 58 28 | 2821 |
| | Venus | W. | 25 11 16 | 2957 | 26 42 23 | 2944 | 28 13 46 | 2930 | 29 45 27 | 2917 |
| | Spica ♍ | W. | 17 20 40 | 2503 | 19 1 49 | 2495 | 20 43 9 | 2487 | 22 24 40 | 2478 |
| | α Aquilæ | E. | 82 14 27 | 2923 | 80 42 37 | 2919 | 79 10 42 | 2915 | 77 38 42 | 2913 |
| | Saturn | E. | 94 34 36 | 2510 | 92 53 36 | 2502 | 91 12 25 | 2492 | 89 31 1 | 2485 |
| | Mars | E. | 102 7 59 | 2545 | 100 27 48 | 2536 | 98 47 25 | 2527 | 97 6 49 | 2519 |
| 7 | Sun | W. | 67 50 38 | 2773 | 69 25 41 | 2764 | 71 0 56 | 2755 | 72 36 23 | 2745 |
| | Venus | W. | 37 27 44 | 2859 | 39 0 55 | 2849 | 40 34 19 | 2838 | 42 7 58 | 2828 |
| | Spica ♍ | W. | 30 55 17 | 2436 | 32 38 0 | 2428 | 34 20 54 | 2419 | 36 4 1 | 2412 |
| | α Aquilæ | E. | 69 58 12 | 2912 | 68 26 8 | 2915 | 66 54 8 | 2919 | 65 22 13 | 2924 |
| | Saturn | E. | 81 1 12 | 2444 | 79 18 40 | 2436 | 77 35 57 | 2428 | 75 53 2 | 2421 |
| | Mars | E. | 88 40 56 | 2477 | 86 59 11 | 2470 | 85 17 16 | 2462 | 83 35 9 | 2455 |
| 8 | Sun | W. | 80 36 43 | 2700 | 82 13 23 | 2691 | 83 50 15 | 2682 | 85 27 19 | 2674 |
| | Venus | W. | 49 59 28 | 2777 | 51 34 26 | 2769 | 53 9 35 | 2759 | 54 44 57 | 2749 |
| | Spica ♍ | W. | 44 42 30 | 2371 | 46 26 47 | 2362 | 48 11 16 | 2354 | 49 55 57 | 2346 |
| | Saturn | E. | 67 15 46 | 2382 | 65 31 46 | 2375 | 63 47 36 | 2369 | 62 3 17 | 2362 |
| | Mars | E. | 75 2 7 | 2420 | 73 19 1 | 2415 | 71 35 48 | 2408 | 69 52 25 | 2403 |
| | Fomalhaut | E. | 86 18 16 | 2840 | 84 44 40 | 2834 | 83 10 56 | 2829 | 81 37 6 | 2826 |
| 9 | Sun | W. | 93 35 31 | 2632 | 95 13 43 | 2624 | 96 52 6 | 2615 | 98 30 40 | 2607 |
| | Venus | W. | 62 44 51 | 2704 | 64 21 26 | 2696 | 65 58 12 | 2687 | 67 35 10 | 2679 |
| | Spica ♍ | W. | 58 42 12 | 2307 | 60 28 2 | 2300 | 62 14 2 | 2292 | 64 0 13 | 2285 |
| | Saturn | E. | 53 19 14 | 2331 | 51 33 59 | 2325 | 49 48 36 | 2320 | 48 3 5 | 2315 |
| | Mars | E. | 61 13 41 | 2380 | 59 29 37 | 2376 | 57 45 28 | 2374 | 56 1 16 | 2371 |
| | Fomalhaut | E. | 73 47 11 | 2822 | 72 13 12 | 2825 | 70 39 17 | 2829 | 69 5 27 | 2835 |
| 10 | Sun | W. | 106 46 5 | 2572 | 108 25 39 | 2565 | 110 5 22 | 2559 | 111 45 14 | 2553 |
| | Venus | W. | 75 42 40 | 2639 | 77 20 42 | 2632 | 78 58 53 | 2626 | 80 37 13 | 2619 |
| | Spica ♍ | W. | 72 53 44 | 2250 | 74 40 57 | 2245 | 76 28 18 | 2238 | 78 15 49 | 2232 |
| | Antares | W. | 27 59 38 | 2362 | 29 44 7 | 2344 | 31 29 3 | 2328 | 33 14 21 | 2314 |
| | Saturn | E. | 39 14 7 | 2300 | 37 28 8 | 2300 | 35 42 8 | 2301 | 33 56 10 | 2302 |
| | Mars | E. | 47 19 47 | 2372 | 45 35 32 | 2376 | 43 51 23 | 2380 | 42 7 20 | 2387 |
| | α Pegasi | E. | 76 28 50 | 2414 | 74 45 35 | 2410 | 73 2 15 | 2408 | 71 18 51 | 2405 |
| 11 | Sun | W. | 120 6 31 | 2526 | 121 47 8 | 2523 | 123 27 49 | 2519 | 125 8 36 | 2515 |
| | Venus | W. | 88 51 4 | 2590 | 90 30 13 | 2585 | 92 9 29 | 2580 | 93 48 52 | 2576 |
| | Antares | W. | 42 5 26 | 2262 | 43 52 22 | 2254 | 45 39 30 | 2246 | 47 26 49 | 2240 |
| | Mars | E. | 33 30 31 | 2457 | 31 48 18 | 2482 | 30 6 40 | 2514 | 28 25 46 | 2553 |
| | α Pegasi | E. | 62 41 21 | 2405 | 60 57 54 | 2408 | 59 14 31 | 2412 | 57 31 13 | 2417 |
| | Jupiter | E. | 111 52 1 | 2198 | 110 3 30 | 2193 | 108 14 52 | 2189 | 106 26 8 | 2185 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 4 | Sun | W. | 36 54 9 | 2978 | 38 24 50 | 2966 | 39 55 46 | 2954 | 41 26 56 | 2943 |
| | Antares | E. | 48 28 28 | 2651 | 46 50 42 | 2645 | 45 12 49 | 2639 | 43 34 47 | 2635 |
| | Saturn | E. | 114 31 4 | 2615 | 112 52 29 | 2606 | 111 13 42 | 2596 | 109 34 42 | 2587 |
| 5 | Sun | W. | 49 6 15 | 2890 | 50 38 47 | 2880 | 52 11 31 | 2870 | 53 44 29 | 2859 |
| | Venus | W. | 19 10 16 | 3026 | 20 39 56 | 3006 | 22 10 1 | 2988 | 23 40 29 | 2973 |
| | Antares | E. | 35 23 8 | 2616 | 33 44 35 | 2616 | 32 6 2 | 2615 | 30 27 28 | 2617 |
| | α Aquilæ | E. | 88 20 33 | 2947 | 86 49 14 | 2940 | 85 17 46 | 2934 | 83 46 10 | 2928 |
| | Saturn | E. | 101 16 38 | 2543 | 99 36 25 | 2535 | 97 56 1 | 2526 | 96 15 24 | 2518 |
| | Mars | E. | 108 46 33 | 2583 | 107 7 14 | 2573 | 105 27 42 | 2564 | 103 47 57 | 2554 |
| 6 | Sun | W. | 61 32 29 | 2811 | 63 6 42 | 2802 | 64 41 8 | 2792 | 66 15 47 | 2782 |
| | Venus | W. | 31 17 24 | 2905 | 32 49 37 | 2893 | 34 22 5 | 2882 | 35 54 47 | 2870 |
| | Spica ♍ | W. | 24 6 24 | 2470 | 25 48 19 | 2462 | 27 30 26 | 2453 | 29 12 46 | 2445 |
| | α Aquilæ | E. | 76 6 39 | 2910 | 74 34 33 | 2909 | 73 2 26 | 2909 | 71 30 18 | 2910 |
| | Saturn | E. | 87 49 27 | 2476 | 86 7 40 | 2468 | 84 25 42 | 2460 | 82 43 33 | 2452 |
| | Mars | E. | 95 26 2 | 2510 | 93 45 3 | 2502 | 92 3 52 | 2493 | 90 22 29 | 2486 |
| 7 | Sun | W. | 74 12 3 | 2736 | 75 47 55 | 2727 | 77 23 59 | 2718 | 79 0 15 | 2709 |
| | Venus | W. | 43 41 50 | 2818 | 45 15 55 | 2808 | 46 50 13 | 2798 | 48 24 44 | 2788 |
| | Spica ♍ | W. | 37 47 19 | 2403 | 39 30 49 | 2395 | 41 14 31 | 2387 | 42 58 25 | 2379 |
| | α Aquilæ | E. | 63 50 25 | 2932 | 62 18 47 | 2941 | 60 47 20 | 2950 | 59 16 5 | 2962 |
| | Saturn | E. | 74 9 57 | 2412 | 72 26 40 | 2405 | 70 43 13 | 2398 | 68 59 35 | 2390 |
| | Mars | E. | 81 52 53 | 2448 | 80 10 26 | 2441 | 78 27 49 | 2434 | 76 45 3 | 2427 |
| 8 | Sun | W. | 87 4 34 | 2665 | 88 42 1 | 2656 | 90 19 40 | 2648 | 91 57 30 | 2640 |
| | Venus | W. | 56 20 32 | 2740 | 57 56 19 | 2731 | 59 32 17 | 2721 | 61 8 29 | 2713 |
| | Spica ♍ | W. | 51 40 49 | 2338 | 53 25 53 | 2331 | 55 11 8 | 2322 | 56 56 35 | 2315 |
| | Saturn | E. | 60 18 47 | 2355 | 58 34 7 | 2348 | 56 49 18 | 2342 | 55 4 20 | 2337 |
| | Mars | E. | 68 8 55 | 2397 | 66 25 16 | 2393 | 64 41 31 | 2388 | 62 57 39 | 2384 |
| | Fomalhaut | E. | 80 3 12 | 2823 | 78 29 14 | 2821 | 76 55 14 | 2820 | 75 21 12 | 2821 |
| 9 | Sun | W. | 100 9 25 | 2600 | 101 48 20 | 2593 | 103 27 25 | 2585 | 105 6 40 | 2578 |
| | Venus | W. | 69 12 18 | 2670 | 70 49 38 | 2663 | 72 27 8 | 2655 | 74 4 49 | 2647 |
| | Spica ♍ | W. | 65 46 34 | 2278 | 67 33 6 | 2270 | 69 19 49 | 2264 | 71 6 42 | 2258 |
| | Saturn | E. | 46 17 28 | 2311 | 44 31 45 | 2308 | 42 45 57 | 2304 | 41 0 3 | 2302 |
| | Mars | E. | 54 17 0 | 2370 | 52 32 42 | 2369 | 50 48 23 | 2369 | 49 4 4 | 2371 |
| | Fomalhaut | E. | 67 31 44 | 2842 | 65 58 10 | 2851 | 64 24 48 | 2862 | 62 51 40 | 2873 |
| 10 | Sun | W. | 113 25 14 | 2546 | 115 5 23 | 2541 | 116 45 39 | 2536 | 118 26 2 | 2532 |
| | Venus | W. | 82 15 42 | 2612 | 83 54 21 | 2607 | 85 33 7 | 2600 | 87 12 2 | 2595 |
| | Spica ♍ | W. | 80 3 29 | 2227 | 81 51 17 | 2221 | 83 39 13 | 2216 | 85 27 17 | 2211 |
| | Antares | W. | 35 0 0 | 2301 | 36 45 58 | 2290 | 38 32 12 | 2279 | 40 18 42 | 2270 |
| | Saturn | E. | 32 10 13 | 2306 | 30 24 22 | 2311 | 28 38 39 | 2320 | 26 53 8 | 2330 |
| | Mars | E. | 40 23 27 | 2396 | 38 39 46 | 2406 | 36 56 20 | 2420 | 35 13 14 | 2436 |
| | α Pegasi | E. | 69 35 23 | 2403 | 67 51 53 | 2403 | 66 8 22 | 2403 | 64 24 51 | 2403 |
| 11 | Sun | W. | 126 49 28 | 2513 | 128 30 23 | 2510 | 130 11 22 | 2509 | 131 52 23 | 2507 |
| | Venus | W. | 95 28 20 | 2572 | 97 7 54 | 2569 | 98 47 32 | 2566 | 100 27 14 | 2563 |
| | Antares | W. | 49 14 17 | 2234 | 51 1 54 | 2229 | 52 49 38 | 2224 | 54 37 30 | 2220 |
| | Mars | E. | 26 45 46 | 2601 | 25 6 52 | 2661 | 23 29 20 | 2737 | 21 53 29 | 2832 |
| | α Pegasi | E. | 55 48 2 | 2423 | 54 5 0 | 2431 | 52 22 10 | 2440 | 50 39 33 | 2452 |
| | Jupiter | E. | 104 37 18 | 2181 | 102 48 22 | 2178 | 100 59 22 | 2176 | 99 10 18 | 2173 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III$^h$. | P. L. of diff. | VI$^h$. | P. L. of diff. | IX$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 12 | Venus | W. | 102 7 0 | 2560 | 103 46 50 | 2559 | 105 26 41 | 2557 | 107 6 35 | 2557 |
| | Antares | W. | 56 25 27 | 2217 | 58 13 30 | 2214 | 60 1 37 | 2212 | 61 49 47 | 2210 |
| | α Pegasi | E. | 48 57 12 | 2466 | 47 15 11 | 2481 | 45 33 31 | 2499 | 43 52 17 | 2521 |
| | α Arietis | E. | 91 19 18 | 2232 | 89 31 38 | 2231 | 87 43 56 | 2230 | 85 56 13 | 2229 |
| | Jupiter | E. | 97 21 9 | 2171 | 95 31 58 | 2169 | 93 42 44 | 2168 | 91 53 28 | 2167 |
| 13 | Antares | W. | 70 51 3 | 2208 | 72 39 18 | 2210 | 74 27 30 | 2213 | 76 15 39 | 2215 |
| | α Arietis | E. | 76 57 42 | 2235 | 75 10 7 | 2238 | 73 22 36 | 2241 | 71 35 10 | 2246 |
| | Jupiter | E. | 82 47 4 | 2170 | 80 57 51 | 2172 | 79 8 41 | 2174 | 77 19 34 | 2177 |
| | Aldebaran | E. | 110 5 18 | 2191 | 108 16 37 | 2192 | 106 27 58 | 2195 | 104 39 23 | 2198 |
| 14 | Antares | W. | 85 15 12 | 2235 | 87 2 47 | 2241 | 88 50 13 | 2248 | 90 37 29 | 2255 |
| | Saturn | W. | 20 11 24 | 2400 | 21 54 59 | 2376 | 23 39 8 | 2359 | 25 23 42 | 2347 |
| | α Arietis | E. | 62 39 55 | 2277 | 60 53 21 | 2285 | 59 6 59 | 2294 | 57 20 51 | 2304 |
| | Jupiter | E. | 68 15 20 | 2199 | 66 26 51 | 2204 | 64 38 30 | 2210 | 62 50 18 | 2218 |
| | Aldebaran | E. | 95 37 46 | 2219 | 93 49 47 | 2225 | 92 1 57 | 2232 | 90 14 17 | 2238 |
| 15 | α Aquilæ | W. | 51 3 41 | 2977 | 52 34 23 | 2954 | 54 5 34 | 2934 | 55 37 10 | 2917 |
| | Saturn | W. | 34 9 11 | 2333 | 35 54 22 | 2337 | 37 39 28 | 2342 | 39 24 27 | 2347 |
| | Mars | W. | 28 3 42 | 2608 | 29 42 26 | 2582 | 31 21 46 | 2563 | 33 1 32 | 2548 |
| | α Arietis | E. | 48 34 8 | 2366 | 46 49 44 | 2381 | 45 5 42 | 2398 | 43 22 4 | 2416 |
| | Jupiter | E. | 53 52 7 | 2259 | 52 5 7 | 2268 | 50 18 21 | 2279 | 48 31 51 | 2289 |
| | Aldebaran | E. | 81 18 40 | 2280 | 79 32 11 | 2289 | 77 45 56 | 2300 | 75 59 56 | 2311 |
| 16 | α Aquilæ | W. | 63 19 9 | 2876 | 64 51 59 | 2874 | 66 24 51 | 2874 | 67 57 43 | 2876 |
| | Saturn | W. | 48 6 52 | 2389 | 49 50 43 | 2400 | 51 34 18 | 2410 | 53 17 38 | 2423 |
| | Mars | W. | 41 23 44 | 2526 | 43 4 21 | 2528 | 44 44 55 | 2532 | 46 25 24 | 2538 |
| | α Arietis | E. | 34 50 57 | 2529 | 33 10 24 | 2559 | 31 30 32 | 2591 | 29 51 25 | 2627 |
| | Jupiter | E. | 39 43 24 | 2349 | 37 58 36 | 2362 | 36 14 6 | 2376 | 34 29 57 | 2390 |
| | Aldebaran | E. | 67 14 2 | 2370 | 65 29 44 | 2383 | 63 45 45 | 2396 | 62 2 5 | 2410 |
| 17 | α Aquilæ | W. | 75 40 59 | 2903 | 77 13 14 | 2913 | 78 45 17 | 2923 | 80 17 7 | 2933 |
| | Saturn | W. | 61 49 54 | 2487 | 63 31 26 | 2501 | 65 12 38 | 2515 | 66 53 30 | 2530 |
| | Mars | W. | 54 45 25 | 2580 | 56 24 47 | 2591 | 58 3 55 | 2603 | 59 42 46 | 2615 |
| | Jupiter | E. | 25 54 23 | 2467 | 24 12 23 | 2484 | 22 30 47 | 2502 | 20 49 36 | 2520 |
| | Aldebaran | E. | 53 28 49 | 2484 | 51 47 13 | 2500 | 50 5 59 | 2515 | 48 25 7 | 2531 |
| | Pollux | E. | 95 58 24 | 2554 | 94 18 26 | 2568 | 92 38 47 | 2584 | 90 59 30 | 2599 |
| 18 | Saturn | W. | 75 12 44 | 2604 | 76 51 33 | 2620 | 78 30 0 | 2635 | 80 8 7 | 2652 |
| | Mars | W. | 67 52 44 | 2682 | 69 29 48 | 2696 | 71 6 34 | 2711 | 72 43 0 | 2726 |
| | Fomalhaut | W. | 59 41 19 | 3233 | 61 6 49 | 3229 | 62 32 24 | 3226 | 63 58 2 | 3226 |
| | α Pegasi | W. | 40 5 44 | 2969 | 41 36 36 | 2961 | 43 7 38 | 2955 | 44 38 47 | 2953 |
| | Aldebaran | E. | 40 6 27 | 2615 | 38 27 52 | 2633 | 36 49 42 | 2650 | 35 11 55 | 2668 |
| | Pollux | E. | 82 48 17 | 2678 | 81 11 8 | 2695 | 79 34 21 | 2711 | 77 57 56 | 2728 |
| 19 | Saturn | W. | 88 13 26 | 2729 | 89 49 28 | 2744 | 91 25 10 | 2759 | 93 0 32 | 2774 |
| | Mars | W. | 80 40 14 | 2800 | 82 14 42 | 2815 | 83 48 50 | 2830 | 85 22 39 | 2843 |
| | Fomalhaut | W. | 71 5 53 | 3242 | 72 31 13 | 3247 | 73 56 27 | 3254 | 75 21 32 | 3262 |
| | α Pegasi | W. | 52 14 41 | 2962 | 53 45 41 | 2968 | 55 16 34 | 2974 | 56 47 20 | 2981 |
| | Pollux | E. | 70 1 30 | 2814 | 68 27 20 | 2832 | 66 53 33 | 2849 | 65 20 9 | 2867 |
| | Sun | E. | 135 14 17 | 3084 | 133 45 48 | 3099 | 132 17 37 | 3115 | 130 49 46 | 3130 |
| 20 | Saturn | W. | 100 52 29 | 2846 | 102 25 57 | 2861 | 103 59 6 | 2874 | 105 31 58 | 2888 |
| | Mars | W. | 93 6 54 | 2919 | 94 38 49 | 2933 | 96 10 26 | 2947 | 97 41 45 | 2961 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| nus | W. | 108 46 29 | 2556 | 110 26 24 | 2556 | 112 6 19 | 2557 | 113 46 13 | 2559 |
| tares | W. | 63 38 0 | 2208 | 65 26 15 | 2208 | 67 14 31 | 2208 | 69 2 47 | 2208 |
| Pegasi | E. | 42 11 33 | 2546 | 40 31 23 | 2574 | 38 51 52 | 2607 | 37 13 7 | 2646 |
| Arietis | E. | 84 8 29 | 2229 | 82 20 45 | 2230 | 80 33 2 | 2231 | 78 45 21 | 2233 |
| piter | E. | 90 4 11 | 2167 | 88 14 54 | 2167 | 86 25 36 | 2168 | 84 36 20 | 2168 |
| tares | W. | 78 3 45 | 2218 | 79 51 46 | 2222 | 81 39 41 | 2226 | 83 27 30 | 2231 |
| Arietis | E. | 69 47 51 | 2250 | 68 0 38 | 2256 | 66 13 34 | 2262 | 64 26 39 | 2270 |
| piter | E. | 75 30 32 | 2180 | 73 41 34 | 2184 | 71 52 43 | 2188 | 70 3 58 | 2193 |
| debaran | E. | 102 50 52 | 2201 | 101 2 26 | 2205 | 99 14 6 | 2209 | 97 25 52 | 2214 |
| tares | W. | 92 24 35 | 2262 | 94 11 30 | 2270 | 95 58 14 | 2279 | 97 44 45 | 2288 |
| turn | W. | 27 8 33 | 2339 | 28 53 36 | 2335 | 30 38 45 | 2332 | 32 23 58 | 2332 |
| Arietis | E. | 55 34 57 | 2314 | 53 49 18 | 2326 | 52 3 56 | 2338 | 50 18 52 | 2352 |
| piter | E. | 61 2 17 | 2225 | 59 14 26 | 2233 | 57 26 47 | 2241 | 55 39 20 | 2250 |
| debaran | E. | 88 26 46 | 2245 | 86 39 26 | 2254 | 84 52 18 | 2262 | 83 5 23 | 2270 |
| Aquilæ | W. | 57 9 7 | 2905 | 58 41 20 | 2894 | 60 13 47 | 2886 | 61 46 24 | 2880 |
| turn | W. | 41 9 18 | 2354 | 42 53 59 | 2361 | 44 38 30 | 2370 | 46 22 48 | 2380 |
| ars | W. | 34 41 38 | 2538 | 36 21 59 | 2531 | 38 2 29 | 2527 | 39 43 5 | 2525 |
| Arietis | E. | 41 38 52 | 2434 | 39 56 6 | 2455 | 38 13 50 | 2478 | 36 32 6 | 2503 |
| piter | E. | 46 45 36 | 2300 | 44 59 37 | 2312 | 43 13 55 | 2324 | 41 28 30 | 2337 |
| debaran | E. | 74 14 12 | 2322 | 72 28 44 | 2333 | 70 43 33 | 2345 | 68 58 39 | 2357 |
| Aquilæ | W. | 69 30 33 | 2878 | 71 3 20 | 2883 | 72 36 1 | 2889 | 74 8 34 | 2895 |
| turn | W. | 55 0 40 | 2434 | 56 43 26 | 2447 | 58 25 54 | 2460 | 60 8 3 | 2473 |
| ars | W. | 48 5 45 | 2544 | 49 45 57 | 2551 | 51 25 59 | 2560 | 53 5 49 | 2570 |
| Arietis | E. | 28 13 7 | 2669 | 26 35 45 | 2715 | 24 59 25 | 2769 | 23 24 17 | 2833 |
| piter | E. | 32 46 8 | 2404 | 31 2 39 | 2419 | 29 19 32 | 2434 | 27 36 46 | 2450 |
| debaran | E. | 60 18 45 | 2424 | 58 35 45 | 2438 | 56 53 5 | 2454 | 55 10 47 | 2468 |
| Aquilæ | W. | 81 48 44 | 2945 | 83 20 6 | 2958 | 84 51 11 | 2971 | 86 22 0 | 2985 |
| turn | W. | 68 34 2 | 2545 | 70 14 13 | 2559 | 71 54 4 | 2574 | 73 33 35 | 2590 |
| ars | W. | 61 21 21 | 2627 | 62 59 39 | 2641 | 64 37 39 | 2654 | 66 15 21 | 2668 |
| piter | E. | 19 8 51 | 2540 | 17 28 33 | 2561 | 15 48 45 | 2585 | 14 9 29 | 2612 |
| debaran | E. | 46 44 37 | 2548 | 45 4 30 | 2564 | 43 24 46 | 2581 | 41 45 25 | 2598 |
| llux | E. | 89 20 33 | 2613 | 87 41 56 | 2630 | 86 3 42 | 2646 | 84 25 49 | 2661 |
| turn | W. | 81 45 52 | 2666 | 83 23 17 | 2682 | 85 0 21 | 2698 | 86 37 4 | 2714 |
| ars | W. | 74 19 6 | 2740 | 75 54 53 | 2755 | 77 30 20 | 2770 | 79 5 27 | 2785 |
| malhaut | W. | 65 23 40 | 3226 | 66 49 18 | 3228 | 68 14 54 | 3231 | 69 40 26 | 3236 |
| Pegasi | W. | 46 9 59 | 2951 | 47 41 13 | 2953 | 49 12 25 | 2954 | 50 43 35 | 2957 |
| debaran | E. | 33 34 32 | 2687 | 31 57 34 | 2705 | 30 21 1 | 2725 | 28 44 54 | 2744 |
| llux | E. | 76 21 54 | 2745 | 74 46 14 | 2762 | 73 10 56 | 2780 | 71 36 2 | 2797 |
| turn | W. | 94 35 34 | 2789 | 96 10 16 | 2803 | 97 44 40 | 2818 | 99 18 44 | 2833 |
| ars | W. | 86 56 8 | 2860 | 88 29 18 | 2875 | 90 2 9 | 2890 | 91 34 41 | 2905 |
| malhaut | W. | 76 46 28 | 3271 | 78 11 14 | 3279 | 79 35 50 | 3288 | 81 0 15 | 3299 |
| Pegasi | W. | 58 17 57 | 2988 | 59 48 25 | 2997 | 61 18 42 | 3004 | 62 48 50 | 3013 |
| llux | E. | 63 47 8 | 2884 | 62 14 29 | 2902 | 60 42 12 | 2920 | 59 10 19 | 2938 |
| N | E. | 129 22 13 | 3145 | 127 54 58 | 3160 | 126 28 1 | 3175 | 125 1 22 | 3190 |
| turn | W. | 107 4 32 | 2901 | 108 36 50 | 2914 | 110 8 51 | 2926 | 111 40 37 | 2939 |
| ars | W. | 99 12 47 | 2975 | 100 43 31 | 2988 | 102 13 59 | 3002 | 103 44 10 | 3014 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | [illegible] |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° |
| 20 | Fomalhaut | W. | 82 24 28 | 3309 | 83 48 29 | 3319 | 85 12 18 | 3331 | 86 |
| | α Pegasi | W. | 64 18 47 | 3022 | 65 48 33 | 3031 | 67 18 7 | 3039 | 68 |
| | Jupiter | W. | 13 40 32 | 2858 | 15 13 45 | 2863 | 16 46 52 | 2870 | 18 |
| | Pollux | E. | 57 38 48 | 2956 | 56 7 40 | 2974 | 54 36 55 | 2992 | 53 |
| | Sun | E. | 123 35 1 | 3204 | 122 8 57 | 3219 | 120 43 10 | 3232 | 119 |
| 21 | Mars | W. | 105 14 5 | 3026 | 106 43 45 | 3039 | 108 13 9 | 3052 | 109 |
| | α Pegasi | W. | 76 11 36 | 3095 | 77 39 52 | 3104 | 79 7 56 | 3113 | 80 |
| | α Arietis | W. | 32 34 16 | 3111 | 34 2 12 | 3109 | 35 30 11 | 3107 | 36 |
| | Jupiter | W. | 26 1 54 | 2924 | 27 33 43 | 2932 | 29 5 21 | 2942 | 30 |
| | Pollux | E. | 45 40 28 | 3107 | 44 12 27 | 3128 | 42 44 51 | 3149 | 41 |
| | Sun | E. | 112 13 59 | 3310 | 110 49 59 | 3321 | 109 26 12 | 3332 | 108 |
| 22 | α Pegasi | W. | 87 52 45 | 3162 | 89 19 39 | 3170 | 90 46 24 | 3177 | 92 |
| | α Arietis | W. | 44 18 3 | 3115 | 45 45 55 | 3116 | 47 13 45 | 3119 | 48 |
| | Jupiter | W. | 38 11 16 | 2990 | 39 41 41 | 2998 | 41 11 57 | 3004 | 42 |
| | Pollux | E. | 34 8 53 | 3302 | 32 44 44 | 3333 | 31 21 11 | 3370 | 29 |
| | Regulus | E. | 69 33 32 | 3033 | 68 4 0 | 3041 | 66 34 38 | 3048 | 65 |
| | Sun | E. | 101 7 41 | 3390 | 99 45 13 | 3399 | 98 22 55 | 3405 | 97 |
| 23 | α Arietis | W. | 55 59 45 | 3131 | 57 27 17 | 3132 | 58 54 48 | 3133 | 60 |
| | Jupiter | W. | 50 11 5 | 3033 | 51 40 37 | 3037 | 53 10 4 | 3039 | 54 |
| | Aldebaran | W. | 22 28 31 | 3116 | 23 56 21 | 3112 | 25 24 16 | 3110 | 26 |
| | Regulus | E. | 57 41 23 | 3086 | 56 12 56 | 3090 | 54 44 34 | 3094 | 53 |
| | Sun | E. | 90 11 41 | 3439 | 88 50 9 | 3444 | 87 28 42 | 3447 | 86 |
| 24 | α Arietis | W. | 67 39 41 | 3132 | 69 7 12 | 3131 | 70 34 44 | 3129 | 72 |
| | Jupiter | W. | 62 5 56 | 3047 | 63 35 11 | 3046 | 65 4 27 | 3045 | 66 |
| | Aldebaran | W. | 34 12 30 | 3100 | 35 40 40 | 3098 | 37 8 52 | 3095 | 38 |
| | Regulus | E. | 45 55 56 | 3113 | 44 28 2 | 3114 | 43 0 10 | 3115 | 41 |
| | Sun | E. | 79 21 2 | 3457 | 77 59 50 | 3457 | 76 38 38 | 3456 | 75 |
| 25 | α Arietis | W. | 79 20 59 | 3110 | 80 48 56 | 3107 | 82 16 57 | 3101 | 83 |
| | Jupiter | W. | 74 0 44 | 3030 | 75 30 19 | 3026 | 76 59 59 | 3022 | 78 |
| | Aldebaran | W. | 45 59 22 | 3074 | 47 28 3 | 3069 | 48 56 50 | 3065 | 50 |
| | Regulus | E. | 34 13 35 | 3124 | 32 45 55 | 3126 | 31 18 17 | 3128 | 29 |
| | Sun | E. | 68 30 48 | 3441 | 67 9 18 | 3438 | 65 47 44 | 3433 | 64 |
| 26 | Jupiter | W. | 86 0 14 | 2986 | 87 30 44 | 2980 | 89 1 22 | 2972 | 90 |
| | Aldebaran | W. | 57 51 57 | 3027 | 59 21 36 | 3019 | 60 51 25 | 3012 | 62 |
| | Pollux | W. | 18 45 37 | 3943 | 19 58 13 | 3811 | 21 13 4 | 3701 | 22 |
| | Regulus | E. | 22 34 2 | 3165 | 21 7 11 | 3181 | 19 40 39 | 3199 | 18 |
| | Sun | E. | 57 36 15 | 3397 | 56 13 55 | 3389 | 54 51 26 | [illegible] | [illegible] |
| 27 | Jupiter | W. | 98 8 46 | 2920 | 99 40 40 | 2911 | 101 12 [illegible] | [illegible] | [illegible] |
| | Aldebaran | W. | 69 53 [illegible] | 2958 | 71 25 0 | 2948 | 72 5[illegible] | [illegible] | [illegible] |
| | Pollux | W. | 29 1 [illegible] | 3311 | 30 38 21 | 3270 | 32 [illegible] | [illegible] | [illegible] |
| | Sun | E. | 46 [illegible] 3 | 3329 | 45 9 35 | [illegible] | [illegible] | [illegible] | [illegible] |
| 28 | Jupiter | W. | 110 [illegible] | [illegible]837 | 112 3 [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | Aldebaran | W. | 8[illegible] | [illegible]874 | 83 [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | Pollux | W. | 4[illegible] | [illegible]064 | 42 [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| | Sun | E. | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| ar's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| nalhaut | W. | 87 59 16 | 3355 | 89 22 24 | 3366 | 90 45 19 | 3379 | 92 8 0 | 3392 |
| egasi | W. | 70 16 43 | 3059 | 71 45 43 | 3068 | 73 14 32 | 3077 | 74 43 10 | 3087 |
| iter | W. | 19 52 38 | 2886 | 21 25 15 | 2895 | 22 57 40 | 2905 | 24 29 53 | 2914 |
| lux | E. | 51 36 33 | 3029 | 50 6 56 | 3048 | 48 37 43 | 3068 | 47 8 54 | 3087 |
| s | E. | 117 52 25 | 3259 | 116 27 26 | 3272 | 115 2 42 | 3286 | 113 38 14 | 3297 |
| rs | W. | 111 11 12 | 3075 | 112 39 52 | 3087 | 114 8 18 | 3097 | 115 36 31 | 3108 |
| 'egasi | W. | 82 3 33 | 3131 | 83 31 5 | 3138 | 84 58 28 | 3147 | 86 25 41 | 3154 |
| rietis | W. | 38 26 13 | 3108 | 39 54 13 | 3109 | 41 22 12 | 3110 | 42 50 9 | 3113 |
| iter | W. | 32 8 1 | 2959 | 33 39 5 | 2967 | 35 9 59 | 2976 | 36 40 42 | 2983 |
| lux | E. | 39 50 57 | 3194 | 38 24 41 | 3219 | 36 58 54 | 3245 | 35 33 38 | 3271 |
| s | E. | 106 39 16 | 3353 | 105 16 6 | 3363 | 103 53 7 | 3372 | 102 30 19 | 3381 |
| 'egasi | W. | 93 39 30 | 3190 | 95 5 51 | 3196 | 96 32 5 | 3203 | 97 58 11 | 3209 |
| rietis | W. | 50 9 15 | 3124 | 51 36 56 | 3126 | 53 4 34 | 3127 | 54 32 11 | 3129 |
| iter | W. | 44 12 6 | 3015 | 45 42 0 | 3021 | 47 11 47 | 3025 | 48 41 29 | 3030 |
| lux | E. | 28 36 13 | 3453 | 27 14 56 | 3503 | 25 54 35 | 3559 | 24 35 16 | 3626 |
| gulus | E. | 63 36 21 | 3063 | 62 7 26 | 3069 | 60 38 38 | 3074 | 59 9 57 | 3080 |
| s | E. | 95 38 42 | 3419 | 94 16 47 | 3425 | 92 54 59 | 3431 | 91 33 17 | 3436 |
| rietis | W. | 61 49 46 | 3134 | 63 17 15 | 3134 | 64 44 43 | 3134 | 66 12 12 | 3134 |
| iter | W. | 56 8 50 | 3044 | 57 38 8 | 3045 | 59 7 25 | 3046 | 60 36 41 | 3047 |
| ebaran | W. | 28 20 12 | 3106 | 29 48 14 | 3105 | 31 16 17 | 3104 | 32 44 22 | 3101 |
| gulus | E. | 51 48 5 | 3101 | 50 19 57 | 3105 | 48 51 53 | 3108 | 47 23 53 | 3110 |
| s | E. | 84 46 0 | 3453 | 83 24 43 | 3455 | 82 3 28 | 3456 | 80 42 15 | 3456 |
| rietis | W. | 73 29 56 | 3124 | 74 57 36 | 3121 | 76 25 20 | 3119 | 77 53 7 | 3115 |
| iter | W. | 68 3 2 | 3042 | 69 32 23 | 3040 | 71 1 46 | 3037 | 72 31 13 | 3034 |
| ebaran | W. | 40 5 27 | 3090 | 41 33 49 | 3087 | 43 2 15 | 3083 | 44 30 46 | 3078 |
| gulus | E. | 40 4 31 | 3119 | 38 36 45 | 3120 | 37 9 0 | 3122 | 35 41 17 | 3123 |
| s | E. | 73 56 10 | 3454 | 72 34 54 | 3451 | 71 13 35 | 3449 | 69 52 14 | 3445 |
| rietis | W. | 85 13 19 | 3091 | 86 41 39 | 3086 | 88 10 6 | 3079 | 89 38 41 | 3073 |
| iter | W. | 79 59 37 | 3012 | 81 29 35 | 3006 | 82 59 40 | 3000 | 84 29 53 | 2993 |
| ebaran | W. | 51 54 43 | 3054 | 53 23 49 | 3047 | 54 53 4 | 3041 | 56 22 26 | 3034 |
| gulus | E. | 28 23 10 | 3134 | 26 55 42 | 3140 | 25 28 21 | 3145 | 24 1 6 | 3154 |
| s | E. | 63 4 21 | 3423 | 61 42 30 | 3416 | 60 20 32 | 3410 | 58 58 27 | 3404 |
| iter | W. | 92 3 8 | 2956 | 93 34 16 | 2947 | 95 5 35 | 2939 | 96 37 5 | 2930 |
| ebaran | W. | 63 51 32 | 2995 | 65 21 51 | 2986 | 66 52 21 | 2978 | 68 23 2 | 2968 |
| lux | W. | 23 48 14 | 3532 | 25 8 3 | 3465 | 26 29 6 | 3407 | 27 51 15 | 3356 |
| gulus | E. | 16 48 51 | 3263 | 15 23 57 | 3313 | 14 0 1 | 3386 | 12 37 29 | 3489 |
| s | E. | 52 6 1 | 3365 | 50 43 5 | 3356 | 49 19 58 | 3347 | 47 56 41 | 3338 |
| iter | W. | 104 17 34 | 2880 | 105 50 19 | 2870 | 107 23 16 | 2859 | 108 56 28 | 2848 |
| ebaran | W. | 75 59 30 | 2917 | 77 31 27 | 2908 | 79 3 36 | 2896 | 80 36 0 | 2885 |
| lux | W. | 34 54 49 | 3168 | 36 21 36 | 3139 | 37 48 58 | 3113 | 39 16 52 | 3087 |
| s | E. | 40 57 29 | 3288 | 39 33 4 | 3277 | 38 8 26 | 3267 | 36 43 36 | 3256 |
| iter | W. | 116 46 2 | 2791 | 118 20 41 | 2779 | 119 55 36 | 2769 | 121 30 45 | 2756 |
| ebaran | W. | 88 21 34 | 2828 | 89 55 25 | 2816 | 91 29 32 | 2805 | 93 3 54 | 2793 |
| lux | W. | 46 43 40 | 2978 | 48 14 20 | 2958 | 49 45 25 | 2940 | 51 16 53 | 2922 |
| s | E. | 29 36 19 | 3204 | 28 [illegible] | 3194 | 26 43 58 | 3186 | 25 17 32 | 3177 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER

At $13^h\ 30^m$, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·3 ·1 4· | ○ 2· |
| 2 | 4· 2· ·3 | ○ 1· |
| 3 | 4· ·2 | ○ ·3 |
| 4 | 4· | ○ ·2 ·3 |
| 5 | ·4 | ○ 2· ·1 3· |
| 6 | ·4 2· 1· 3· | ○ |
| 7 | ·4 3· | ○ ·1 |
| 8 | ·3 ·4 ·1 | ○ 2· |
| 9 | ·3 2· | ○ ·4 1· |
| 10 | ·2 ·1 | ○ ·3 ·4 |
| 11 | 1 | ○ · ·2 ·3 ·4 |
| 12 | | ○ ·1 2· 3· ·4 |
| 13 | 2· 1· 3· | ○ · 4. |
| 14 | ·2 ● 3· | ○ ·1 4· |
| 15 | ·3 ·1 | ○ 2. 4· |
| 16 | ·3 2· | ○ 1· 4· |
| 17 | ·2 ·1 | ○ 4· ·3 |
| 18 | 4· | ○ 1· ·2 ·3 |
| 19 | ·1 ● 4· | ○ 2· 3· |
| 20 | 4· 2· 1· | ○ 3· |
| 21 | 4· 3· ·2 | ○ ·1 |
| 22 | ·4 ·3 1· | ○ 2. |
| 23 | ·4 ·3 | ○ 1. |
| 24 | ·4 ·2 ·1 | ○ ·3 |
| 25 | ·4 | ○ 1· ·2 ·3 |
| 26 | ·1 ● | ○ ·4 2· 3· |
| 27 | 1· ○ 2· | ○ 3· ·4 |
| 28 | 2· ·2 | ○ ·1 ·4 |
| 29 | 3· 1· | ○ ·2 ·4 |
| 30 | 2· ○ ·3 | ○ ·1 4. |

This Table represents, at $13^h\ 30^m$ after *Mean Noon* of each day of the month, the relative posit of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the p the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to disting the Satellites from each other; and their positions are such as to indicate the directions of the S lites' motions, which are in all cases to be considered as *towards the numerals.* When a Satelli at its greatest elongation, the point is placed above or below the centre of the numeral. A w circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side of *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shadow Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| LLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 18 46 40 ·8 | 5 31 47 ·6 | Im. |
| | 3* | 13 15 9 ·6 | 0 7 15 ·0 | Im. |
| | 5 | 7 43 36 ·3 | 18 42 40 ·3 | Im. |
| | 7 | 2 12 8 ·0 | 13 18 10 ·7 | Im. |
| | 8 | 20 40 35 ·2 | 7 53 36 ·6 | Im. |
| | 10* | 15 9 5 ·6 | 2 29 5 ·6 | Im. |
| | 12* | 9 37 33 ·5 | 21 4 32 ·2 | Im. |
| | 14 | 4 6 6 ·7 | 15 40 4 ·0 | Im. i |
| | 15 | 22 34 35 ·7 | 10 15 31 ·7 | Im. *  |
| | 17† | 17 3 7 ·8 | 4 51 2 ·4 | Im. |
| | 19* | 11 31 37 ·1 | 23 26 30 ·3 | Im. |
| | 21 | 6 0 12 ·3 | 18 2 4 ·2 | Im. |
| | 23 | 0 28 42 ·8 | 12 37 33 ·3 | Im. |
| | 24 | 18 57 16 ·8 | 7 13 6 ·0 | Im. |
| | 26* | 13 25 47 ·7 | 1 48 35 ·5 | Im. |
| | 28* | 7 54 24 ·7 | 20 24 11 ·3 | Im. |
| | 30 | 2 22 57 ·1 | 14 59 42 ·3 | Im. |
| I. | 3 | 20 44 21 ·0 | 7 37 40 ·3 | Im. |
| | 7* | 10 3 1 ·2 | 21 10 21 ·3 | Im. |
| | 10 | 23 20 58 ·7 | 10 42 19 ·6 | Im. |
| | 14* | 12 39 33 ·9 | 0 14 55 ·5 | Im. |
| | 18 | 1 57 31 ·2 | 13 46 53 ·6 | Im. i |
| | 21* | 15 16 1 ·6 | 3 19 24 ·8 | Im. *  |
| | 25 | 4 33 58 ·1 | 16 51 22 ·0 | Im. |
| | 28† | 17 52 23 ·9 | 6 23 48 ·6 | Im. |
| II. | 2† | 16 29 2 ·1 | 3 17 42 ·8 | Im. |
| | 2 | 18 40 50 ·6 | 5 29 53 ·0 | Em. |
| | 9 | 20 29 39 ·6 | 7 46 35 ·7 | Im. |
| | 9 | 22 40 44 ·3 | 9 58 2 ·0 | Em. |
| | 17 | 0 30 13 ·5 | 12 15 25 ·0 | Im. |
| | 17 | 2 40 35 ·7 | 14 26 8 ·6 | Em. i e |
| | 24 | 4 31 1 ·7 | 16 44 28 ·6 | Im. * *  |
| | 24 | 6 40 42 ·4 | 18 54 30 ·6 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shado | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egr |
| | d h m | d h m | d h m | d h m | d h m | d h |
| I. | | 1 8 54 | 0 9 32 | 1 11 43 | 2* 2 53 | 2 5 |
| | | 3† 3 28 | 2† 4 6 | 2 6 17 | 4* 21 28 | 4* 23 |
| | | 5* 22 2 | 4* 22 40 | 4* 0 51 | 6 16 4 | 6 18 |
| | | 7 16 36 | 6 17 14 | 6† 19 25 | 7 10 39 | 8 12 |
| | | 8 11 10 | 8 11 48 | 8 13 59 | 9 5 15 | 9 7 |
| | In | 10 5 44 | 9 6 22 | 9 8 33 | 11* 23 51 | 11* 2 |
| | | 12* 0 18 | 11* 0 56 | 11* 3 7 | 13 18 26 | 13* 20 |
| | | 14 18 52 | 13† 19 30 | 13* 21 41 | 15 13 2 | 15 15 |
| | the | 16 13 25 | 15 14 4 | 15 16 15 | 16 7 37 | 16 9 |
| | | 17 7 59 | 16 8 37 | 16 10 48 | 18* 2 13 | 18* 4 |
| | | 19* 2 32 | 18* 3 11 | 18† 5 22 | 20* 20 48 | 20* 23 |
| | Shadow. | 21* 21 6 | 20* 21 45 | 20* 23 55 | 22 15 24 | 22 17 |
| | | 23 15 39 | 22 16 18 | 22 18 29 | 23 9 59 | 23 12 |
| | | 24 10 13 | 23 10 52 | 24 13 2 | 25* 4 35 | 25 6 |
| | | 26* 4 46 | 25* 5 25 | 25 7 36 | 27* 23 10 | 27* 1 |
| | | 28* 23 19 | 27* 23 58 | 27* 2 9 | 29 17 46 | 29† 19 |
| | | 30 17 53 | 29 18 32 | 29* 20 42 | 30 12 22 | 31 14 |
| II. | | 4 12 29 | 2 14 53 | 2 17 19 | 2 12 23 | 2 14 |
| | | 7* 1 56 | 5† 4 19 | 5 6 45 | 5* 1 55 | 5 4 |
| | In | 11 15 21 | 9 17 44 | 9† 20 11 | 9 15 26 | 9 17 |
| | | 14† 4 46 | 12 7 9 | 12 9 35 | 12† 4 58 | 12 7 |
| | the | 18 18 10 | 16* 20 34 | 16* 23 0 | 16 18 30 | 16* 21 |
| | | 21 7 35 | 19 9 58 | 20 12 23 | 19 8 2 | 19 10 |
| | Shadow. | 25* 20 58 | 23* 23 21 | 23* 1 47 | 23* 21 34 | 23* 0 |
| | | 28 10 21 | 27 12 44 | 27 15 10 | 26 11 6 | 27 13 |
| | | | 30* 2 7 | 30* 4 32 | 30* 0 38 | 30* 3 |
| III. | 2 8 16 | 2 10 14 | 6* 22 23 | 6* 0 20 | 6 17 28 | 6† 19 |
| | 10 12 22 | 10 14 18 | 13* 2 27 | 13† 4 22 | 13* 21 58 | 13* 0 |
| | 17 16 23 | 17 18 17 | 20 6 25 | 20 8 19 | 20* 2 27 | 20* 4 |
| | 24* 20 19 | 24* 22 12 | 27 10 20 | 27 12 13 | 27 6 57 | 27 9 |

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding $0^{d}.840658$. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +1 ·2424 | −0 ·8564 | +9 ·9779 | +0 ·7424 | 13 15 47 ·57 | 162 | 243 | ·665 |
| 2 | 1 ·2451 | 0 ·8363 | 9 ·9787 | 0 ·7420 | 13 11 51 ·66 | 163 | 244 | ·668 |
| 3 | 1 ·2477 | 0 ·8152 | 9 ·9796 | 0 ·7416 | 13 7 55 ·76 | 164 | 245 | ·671 |
| 4 | +1 ·2501 | −0 ·7929 | +9 ·9804 | +0 ·7413 | 13 3 59 ·85 | 165 | 246 | ·674 |
| 5 | 1 ·2524 | 0 ·7692 | 9 ·9813 | 0 ·7410 | 13 0 3 ·94 | 166 | 247 | ·676 |
| 6 | 1 ·2546 | 0 ·7440 | 9 ·9821 | 0 ·7407 | 12 56 8 ·03 | 167 | 248 | ·679 |
| 7 | +1 ·2566 | −0 ·7171 | +9 ·9829 | +0 ·7405 | 12 52 12 ·13 | 168 | 249 | ·682 |
| 8 | 1 ·2585 | 0 ·6883 | 9 ·9837 | 0 ·7403 | 12 48 16 ·22 | 169 | 250 | ·684 |
| 9 | 1 ·2602 | 0 ·6573 | 9 ·9845 | 0 ·7402 | 12 44 20 ·31 | 170 | 251 | ·687 |
| 10 | +1 ·2618 | −0 ·6237 | +9 ·9853 | +0 ·7401 | 12 40 24 ·41 | 171 | 252 | ·690 |
| 11 | 1 ·2633 | 0 ·5872 | 9 ·9861 | 0 ·7401 | 12 36 28 ·50 | 172 | 253 | ·693 |
| 12 | 1 ·2647 | 0 ·5472 | 9 ·9869 | 0 ·7401 | 12 32 32 ·60 | 173 | 254 | ·695 |
| 13 | +1 ·2659 | −0 ·5029 | +9 ·9876 | +0 ·7401 | 12 28 36 ·69 | 174 | 255 | ·698 |
| 14 | 1 ·2670 | 0 ·4534 | 9 ·9884 | 0 ·7402 | 12 24 40 ·78 | 175 | 256 | ·701 |
| 15 | 1 ·2680 | 0 ·3974 | 9 ·9892 | 0 ·7403 | 12 20 44 ·88 | 176 | 257 | ·704 |
| 16 | +1 ·2689 | −0 ·3329 | +9 ·9899 | +0 ·7405 | 12 16 48 ·97 | 177 | 258 | ·706 |
| 17 | 1 ·2696 | 0 ·2570 | 9 ·9907 | 0 ·7408 | 12 12 53 ·07 | 178 | 259 | ·709 |
| 18 | 1 ·2702 | 0 ·1646 | 9 ·9914 | 0 ·7411 | 12 8 57 ·16 | 179 | 260 | ·712 |
| 19 | +1 ·2707 | −0 ·0470 | +9 ·9922 | +0 ·7414 | 12 5 1 ·25 | 180 | 261 | ·715 |
| 20 | 1 ·2710 | 9 ·8847 | 9 ·9929 | 0 ·7418 | 12 1 5 ·35 | 181 | 262 | ·717 |
| 21 | 1 ·2712 | 9 ·6224 | 9 ·9937 | 0 ·7422 | 11 57 9 ·44 | 182 | 263 | ·720 |
| 22 | +1 ·2713 | −8 ·8516 | +9 ·9944 | +0 ·7427 | 11 53 13 ·53 | 183 | 264 | ·723 |
| 23 | 1 ·2713 | +9 ·4429 | 9 ·9951 | 0 ·7432 | 11 49 17 ·63 | 184 | 265 | ·726 |
| 24 | 1 ·2711 | 9 ·7964 | 9 ·9959 | 0 ·7438 | 11 45 21 ·72 | 185 | 266 | ·728 |
| 25 | +1 ·2708 | +9 ·9887 | +9 ·9966 | +0 ·7445 | 11 41 25 ·81 | 186 | 267 | ·731 |
| 26 | 1 ·2704 | 0 ·1215 | 9 ·9973 | 0 ·7451 | 11 37 29 ·91 | 187 | 268 | ·734 |
| 27 | 1 ·2698 | 0 ·2230 | 9 ·9981 | 0 ·7459 | 11 33 34 ·00 | 188 | 269 | ·736 |
| 28 | +1 ·2691 | +0 ·3052 | +9 ·9988 | +0 ·7466 | 11 29 38 ·10 | 189 | 270 | ·739 |
| 29 | 1 ·2683 | 0 ·3741 | 9 ·9996 | 0 ·7475 | 11 25 42 ·19 | 190 | 271 | ·742 |
| 30 | 1 ·2674 | 0 ·4336 | 0 ·0003 | 0 ·7483 | 11 21 46 ·28 | 191 | 272 | ·745 |
| 31 | +1 ·2663 | +0 ·4858 | +0 ·0010 | +0 ·7492 | 11 17 50 ·38 | 192 | 273 | ·747 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subtracted from Apparent Time.* |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Wed. | 1 | 12 29 55 ·23 | 9 ·071 | S. 3 13 59 ·9 | 58 ·26 | 1 4 ·31 | 10 21 ·34 |
| Thur. | 2 | 12 33 32 ·93 | 9 ·083 | 3 37 18 ·2 | 58 ·16 | 1 4 ·36 | 10 40 ·14 |
| Frid. | 3 | 12 37 10 ·93 | 9 ·097 | 4 0 34 ·0 | 58 ·04 | 1 4 ·41 | 10 58 ·64 |
| Sat. | 4 | 12 40 49 ·27 | 9 ·112 | 4 23 46 ·9 | 57 ·90 | 1 4 ·46 | 11 16 ·81 |
| *Sun.* | 5 | 12 44 27 ·95 | 9 ·126 | 4 46 56 ·6 | 57 ·75 | 1 4 ·51 | 11 34 ·63 |
| Mon. | 6 | 12 48 6 ·98 | 9 ·142 | 5 10 2 ·7 | 57 ·59 | 1 4 ·57 | 11 52 ·11 |
| Tues. | 7 | 12 51 46 ·40 | 9 ·159 | 5 33 4 ·8 | 57 ·41 | 1 4 ·63 | 12 9 ·19 |
| Wed. | 8 | 12 55 26 ·21 | 9 ·176 | 5 56 2 ·6 | 57 ·21 | 1 4 ·69 | 12 25 ·88 |
| Thur. | 9 | 12 59 6 ·43 | 9 ·194 | 6 18 55 ·6 | 57 ·00 | 1 4 ·75 | 12 42 ·17 |
| Frid. | 10 | 13 2 47 ·08 | 9 ·213 | 6 41 43 ·5 | 56 ·77 | 1 4 ·82 | 12 58 ·03 |
| Sat. | 11 | 13 6 28 ·20 | 9 ·233 | 7 4 26 ·0 | 56 ·53 | 1 4 ·89 | 13 13 ·42 |
| *Sun.* | 12 | 13 10 9 ·78 | 9 ·254 | 7 27 2 ·7 | 56 ·27 | 1 4 ·97 | 13 28 ·35 |
| Mon. | 13 | 13 13 51 ·87 | 9 ·275 | 7 49 33 ·3 | 56 ·00 | 1 5 ·05 | 13 42 ·78 |
| Tues. | 14 | 13 17 34 ·47 | 9 ·297 | 8 11 57 ·3 | 55 ·71 | 1 5 ·13 | 13 56 ·70 |
| Wed. | 15 | 13 21 17 ·61 | 9 ·321 | 8 34 14 ·4 | 55 ·41 | 1 5 ·21 | 14 10 ·07 |
| Thur. | 16 | 13 25 1 ·31 | 9 ·345 | 8 56 24 ·2 | 55 ·10 | 1 5 ·29 | 14 22 ·88 |
| Frid. | 17 | 13 28 45 ·60 | 9 ·370 | 9 18 26 ·5 | 54 ·76 | 1 5 ·37 | 14 35 ·12 |
| Sat. | 18 | 13 32 30 ·49 | 9 ·396 | 9 40 20 ·7 | 54 ·41 | 1 5 ·46 | 14 46 ·75 |
| *Sun.* | 19 | 13 36 16 ·00 | 9 ·423 | 10 2 6 ·5 | 54 ·05 | 1 5 ·55 | 14 57 ·76 |
| Mon. | 20 | 13 40 2 ·15 | 9 ·451 | 10 23 43 ·6 | 53 ·67 | 1 5 ·64 | 15 8 ·13 |
| Tues. | 21 | 13 43 48 ·98 | 9 ·479 | 10 45 11 ·6 | 53 ·27 | 1 5 ·73 | 15 17 ·83 |
| Wed. | 22 | 13 47 36 ·48 | 9 ·508 | 11 6 30 ·0 | 52 ·86 | 1 5 ·83 | 15 26 ·86 |
| Thur. | 23 | 13 51 24 ·68 | 9 ·538 | 11 27 38 ·6 | 52 ·43 | 1 5 ·93 | 15 35 ·19 |
| Frid. | 24 | 13 55 13 ·60 | 9 ·568 | 11 48 36 ·8 | 51 ·97 | 1 6 ·03 | 15 42 ·80 |
| Sat. | 25 | 13 59 3 ·24 | 9 ·599 | 12 9 24 ·3 | 51 ·51 | 1 6 ·13 | 15 49 ·70 |
| *Sun.* | 26 | 14 2 53 ·62 | 9 ·631 | 12 30 0 ·6 | 51 ·03 | 1 6 ·24 | 15 55 ·85 |
| Mon. | 27 | 14 6 44 ·76 | 9 ·663 | 12 50 25 ·4 | 50 ·53 | 1 6 ·34 | 16 1 ·25 |
| Tues. | 28 | 14 10 36 ·66 | 9 ·695 | 13 10 38 ·2 | 50 ·02 | 1 6 ·45 | 16 5 ·89 |
| Wed. | 29 | 14 14 29 ·34 | 9 ·727 | 13 30 38 ·7 | 49 ·48 | 1 6 ·56 | 16 9 ·76 |
| Thur. | 30 | 14 18 22 ·78 | 9 ·760 | 13 50 26 ·3 | 48 ·93 | 1 6 ·67 | 16 12 ·86 |
| Frid. | 31 | 14 22 17 ·01 | 9 ·793 | 14 10 0 ·7 | 48 ·37 | 1 6 ·78 | 16 15 ·18 |
| Sat. | 32 | 14 26 12 ·03 | | S. 14 29 21 ·5 | | 1 6 ·90 | 16 16 ·71 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0ˢ·18 from the *Sidereal*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be added to Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| Wed. | 1 | 12 29 56 ·79 | S. 3 14 10 ·0 | 16 0 ·5 | 10 21 ·48 | 12 40 18 ·27 |
| Thur. | 2 | 12 33 34 ·54 | 3 37 28 ·5 | 16 0 ·8 | 10 40 ·28 | 12 44 14 ·82 |
| Frid. | 3 | 12 37 12 ·60 | 4 0 44 ·6 | 16 1 ·1 | 10 58 ·78 | 12 48 11 ·38 |
| Sat. | 4 | 12 40 50 ·98 | 4 23 57 ·8 | 16 1 ·4 | 11 16 ·95 | 12 52 7 ·93 |
| Sun. | 5 | 12 44 29 ·71 | 4 47 7 ·8 | 16 1 ·7 | 11 34 ·77 | 12 56 4 ·48 |
| Mon. | 6 | 12 48 8 ·79 | 5 10 14 ·1 | 16 2 ·0 | 11 52 ·25 | 13 0 1 ·03 |
| Tues. | 7 | 12 51 48 ·25 | 5 33 16 ·5 | 16 2 ·2 | 12 9 ·33 | 13 3 57 ·59 |
| Wed. | 8 | 12 55 28 ·11 | 5 56 14 ·5 | 16 2 ·5 | 12 26 ·02 | 13 7 54 ·14 |
| Thur. | 9 | 12 59 8 ·38 | 6 19 7 ·7 | 16 2 ·8 | 12 42 ·31 | 13 11 50 ·69 |
| Frid. | 10 | 13 2 49 ·08 | 6 41 55 ·8 | 16 3 ·1 | 12 58 ·17 | 13 15 47 ·24 |
| Sat. | 11 | 13 6 30 ·23 | 7 4 38 ·5 | 16 3 ·4 | 13 13 ·56 | 13 19 43 ·80 |
| Sun. | 12 | 13 10 11 ·86 | 7 27 15 ·4 | 16 3 ·6 | 13 28 ·49 | 13 23 40 ·35 |
| Mon. | 13 | 13 13 53 ·99 | 7 49 46 ·1 | 16 3 ·9 | 13 42 ·91 | 13 27 36 ·90 |
| Tues. | 14 | 13 17 36 ·63 | 8 12 10 ·2 | 16 4 ·2 | 13 56 ·82 | 13 31 33 ·45 |
| Wed. | 15 | 13 21 19 ·81 | 8 34 27 ·4 | 16 4 ·5 | 14 10 ·19 | 13 35 30 ·01 |
| Thur. | 16 | 13 25 3 ·56 | 8 56 37 ·4 | 16 4 ·8 | 14 23 ·00 | 13 39 26 ·56 |
| Frid. | 17 | 13 28 47 ·88 | 9 18 39 ·8 | 16 5 ·0 | 14 35 ·24 | 13 43 23 ·11 |
| Sat. | 18 | 13 32 32 ·80 | 9 40 34 ·1 | 16 5 ·3 | 14 46 ·86 | 13 47 19 ·66 |
| Sun. | 19 | 13 36 18 ·35 | 10 2 20 ·0 | 16 5 ·6 | 14 57 ·87 | 13 51 16 ·22 |
| Mon. | 20 | 13 40 4 ·54 | 10 23 57 ·2 | 16 5 ·8 | 15 8 ·23 | 13 55 12 ·77 |
| Tues. | 21 | 13 43 51 ·40 | 10 45 25 ·2 | 16 6 ·1 | 15 17 ·93 | 13 59 9 ·32 |
| Wed. | 22 | 13 47 38 ·93 | 11 6 43 ·6 | 16 6 ·4 | 15 26 ·95 | 14 3 5 ·88 |
| Thur. | 23 | 13 51 27 ·16 | 11 27 52 ·2 | 16 6 ·6 | 15 35 ·27 | 14 7 2 ·43 |
| Frid. | 24 | 13 55 16 ·10 | 11 48 50 ·4 | 16 6 ·9 | 15 42 ·88 | 14 10 58 ·98 |
| Sat. | 25 | 13 59 5 ·77 | 12 9 37 ·8 | 16 7 ·1 | 15 49 ·76 | 14 14 55 ·54 |
| Sun. | 26 | 14 2 56 ·18 | 12 30 14 ·1 | 16 7 ·4 | 15 55 ·91 | 14 18 52 ·09 |
| Mon. | 27 | 14 6 47 ·34 | 12 50 38 ·9 | 16 7 ·6 | 16 1 ·30 | 14 22 48 ·64 |
| Tues. | 28 | 14 10 39 ·26 | 13 10 51 ·7 | 16 7 ·9 | 16 5 ·93 | 14 26 45 ·20 |
| Wed. | 29 | 14 14 31 ·96 | 13 30 52 ·0 | 16 8 ·1 | 16 9 ·79 | 14 30 41 ·75 |
| Thur. | 30 | 14 18 25 ·42 | 13 50 39 ·5 | 16 8 ·4 | 16 12 ·89 | 14 34 38 ·30 |
| Frid. | 31 | 14 22 19 ·66 | 14 10 13 ·8 | 16 8 ·6 | 16 15 ·20 | 14 38 34 ·86 |
| Sat. | 32 | 14 26 14 ·70 | S. 14 29 34 ·4 | 16 8 ·9 | 16 16 ·71 | 14 42 31 ·41 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 188 9 8·8 | S. 0·15 | 0·0001634 | 15 32·8 | 15 37·5 | 57 3·1 | 57 20·4 |
| 2 | 189 8 16·5 | S. 0·03 | 0·0000376 | 15 41·9 | 15 46·1 | 57 36·7 | 57 51·9 |
| 3 | 190 7 26·1 | N. 0·09 | 9·9999111 | 15 50·0 | 15 53·5 | 58 6·1 | 58 19·0 |
| 4 | 191 6 37·7 | 0·23 | 9·9997840 | 15 56·6 | 15 59·3 | 58 30·3 | 58 40·2 |
| 5 | 192 5 51·2 | 0·36 | 9·9996564 | 16 1·6 | 16 3·5 | 58 48·8 | 58 55·8 |
| 6 | 193 5 6·5 | 0·48 | 9·9995285 | 16 5·1 | 16 6·3 | 59 1·5 | 59 5·9 |
| 7 | 194 4 23·6 | 0·58 | 9·9994004 | 16 7·1 | 16 7·7 | 59 9·1 | 59 11·4 |
| 8 | 195 3 42·5 | 0·66 | 9·9992723 | 16 8·0 | 16 8·0 | 59 12·5 | 59 12·4 |
| 9 | 196 3 3·1 | 0·72 | 9·9991444 | 16 7·7 | 16 7·0 | 59 11·1 | 59 8·7 |
| 10 | 197 2 25·4 | 0·74 | 9·9990167 | 16 6·0 | 16 4·7 | 59 5·1 | 59 0·2 |
| 11 | 198 1 49·6 | 0·74 | 9·9988894 | 16 3·0 | 16 0·8 | 58 53·8 | 58 45·9 |
| 12 | 199 1 15·5 | 0·71 | 9·9987628 | 15 58·3 | 15 55·3 | 58 36·6 | 58 25·7 |
| 13 | 200 0 43·4 | 0·65 | 9·9986370 | 15 51·9 | 15 48·2 | 58 13·3 | 57 59·5 |
| 14 | 201 0 13·1 | 0·56 | 9·9985120 | 15 44·1 | 15 39·7 | 57 44·5 | 57 28·3 |
| 15 | 201 59 44·8 | 0·46 | 9·9983879 | 15 35·0 | 15 30·2 | 57 11·4 | 56 53·7 |
| 16 | 202 59 18·5 | 0·33 | 9·9982648 | 15 25·3 | 15 20·4 | 56 35·6 | 56 17·6 |
| 17 | 203 58 54·2 | 0·19 | 9·9981428 | 15 15·5 | 15 10·8 | 55 59·7 | 55 42·3 |
| 18 | 204 58 32·0 | N. 0·06 | 9·9980218 | 15 6·3 | 15 2·1 | 55 25·8 | 55 10·3 |
| 19 | 205 58 12·0 | S. 0·07 | 9·9979019 | 14 58·2 | 14 54·8 | 54 56·3 | 54 43·8 |
| 20 | 206 57 54·1 | 0·19 | 9·9977830 | 14 51·9 | 14 49·6 | 54 33·0 | 54 24·5 |
| 21 | 207 57 38·5 | 0·29 | 9·9976650 | 14 47·8 | 14 46·7 | 54 18·0 | 54 14·0 |
| 22 | 208 57 25·1 | 0·37 | 9·9975480 | 14 46·3 | 14 46·5 | 54 12·5 | 54 13·4 |
| 23 | 209 57 14·0 | 0·42 | 9·9974317 | 14 47·6 | 14 49·3 | 54 17·2 | 54 23·5 |
| 24 | 210 57 5·2 | 0·44 | 9·9973161 | 14 51·7 | 14 54·8 | 54 32·5 | 54 43·8 |
| 25 | 211 56 58·6 | 0·43 | 9·9972012 | 14 58·6 | 15 2·9 | 54 57·5 | 55 13·5 |
| 26 | 212 56 54·2 | 0·39 | 9·9970867 | 15 7·9 | 15 13·2 | 55 31·6 | 55 51·3 |
| 27 | 213 56 52·0 | 0·32 | 9·9969727 | 15 19·0 | 15 25·1 | 56 12·5 | 56 34·7 |
| 28 | 214 56 51·9 | 0·24 | 9·9968591 | 15 31·2 | 15 37·5 | 56 57·4 | 57 20·3 |
| 29 | 215 56 53·9 | S. 0·13 | 9·9967458 | 15 43·6 | 15 49·6 | 57 42·7 | 58 4·6 |
| 30 | 216 56 57·7 | 0·00 | 9·9966329 | 15 55·1 | 16 0·3 | 58 25·0 | 58 43·9 |
| 31 | 217 57 3·5 | N. 0·14 | 9·9965204 | 16 4·8 | 16 8·8 | 59 0·6 | 59 15·1 |
| 32 | 218 57 11·1 | N. 0·26 | 9·9964084 | 16 11·9 | 16 14·4 | 59 26·7 | 59 35·8 |

## MEAN TIME.

| Day of the Week. | Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| Wed. | 1 | 188 40 12 ·5 | 195 18 6 ·7 | S. 3 12 44 ·3 | S. 2 43 20 ·7 | 0 ·0 | ♂ |
| Thur. | 2 | 201 59 25 ·7 | 208 43 56 ·3 | 2 11 25 ·4 | 1 37 22 ·3 | 1 ·0 | 0 34 ·9 |
| Frid. | 3 | 215 31 24 ·2 | 222 21 35 ·1 | S. 1 1 38 ·9 | S. 0 24 45 ·9 | 2 ·0 | 1 26 ·3 |
| Sat. | 4 | 229 14 14 ·5 | 236 9 8 ·8 | N. 0 12 44 ·3 | N. 0 50 17 ·5 | 3 ·0 | 2 20 ·4 |
| *Sun.* | 5 | 243 6 4 ·9 | 250 4 50 ·9 | 1 27 18 ·4 | 2 3 12 ·0 | 4 ·0 | 3 16 ·9 |
| Mon. | 6 | 257 5 15 ·4 | 264 7 7 ·5 | 2 37 23 ·5 | 3 9 19 ·8 | 5 ·0 | 4 14 ·9 |
| Tues. | 7 | 271 10 16 ·4 | 278 14 31 ·1 | 3 38 29 ·2 | 4 4 23 ·5 | 6 ·0 | 5 13 ·2 |
| Wed. | 8 | 285 19 39 ·8 | 292 25 28 ·7 | 4 26 36 ·7 | 4 44 46 ·6 | 7 ·0 | 6 10 ·6 |
| Thur. | 9 | 299 31 42 ·9 | 306 38 4 ·9 | 4 58 35 ·6 | 5 7 50 ·1 | 8 ·0 | 7 6 ·3 |
| Frid. | 10 | 313 44 14 ·8 | 320 49 50 ·3 | 5 12 21 ·2 | 5 12 5 ·4 | 9 ·0 | 8 0 ·0 |
| Sat. | 11 | 327 54 27 ·2 | 334 57 39 ·3 | 5 7 4 ·6 | 4 57 25 ·3 | 10 ·0 | 8 51 ·8 |
| *Sun.* | 12 | 341 58 59 ·2 | 348 57 59 ·1 | 4 43 19 ·6 | 4 25 4 ·8 | 11 ·0 | 9 42 ·3 |
| Mon. | 13 | 355 54 11 ·9 | 2 47 11 ·8 | 4 3 1 ·7 | 3 37 35 ·5 | 12 ·0 | 10 31 ·9 |
| Tues. | 14 | 9 36 35 ·2 | 16 22 1 ·9 | 3 9 13 ·9 | 2 38 27 ·4 | 13 ·0 | 11 21 ·4 |
| Wed. | 15 | 23 3 15 ·2 | 29 40 3 ·3 | 2 5 46 ·5 | 1 31 43 ·3 | 14 ·0 | 12 11 ·0 |
| Thur. | 16 | 36 12 18 ·6 | 42 39 58 ·9 | N. 0 56 48 ·5 | N. 0 21 32 ·3 | 15 ·0 | 13 1 ·0 |
| Frid. | 17 | 49 3 7 ·1 | 55 21 50 ·8 | S. 0 13 37 ·2 | S. 0 48 13 ·9 | 16 ·0 | 13 51 ·3 |
| Sat. | 18 | 61 36 22 ·6 | 67 46 59 ·3 | 1 21 54 ·0 | 1 54 16 ·1 | 17 ·0 | 14 41 ·4 |
| *Sun.* | 19 | 73 54 2 ·0 | 79 57 55 ·0 | 2 25 1 ·0 | 2 53 52 ·2 | 18 ·0 | 15 31 ·0 |
| Mon. | 20 | 85 59 6 ·2 | 91 58 5 ·6 | 3 20 35 ·0 | 3 44 56 ·0 | 19 ·0 | 16 19 ·5 |
| Tues. | 21 | 97 55 25 ·7 | 103 51 40 ·3 | 4 6 44 ·2 | 4 25 49 ·3 | 20 ·0 | 17 6 ·8 |
| Wed. | 22 | 109 47 24 ·7 | 115 43 14 ·7 | 4 42 2 ·2 | 4 55 15 ·0 | 21 ·0 | 17 52 ·8 |
| Thur. | 23 | 121 39 46 ·5 | 127 37 36 ·0 | 5 5 19 ·7 | 5 12 9 ·4 | 22 ·0 | 18 37 ·6 |
| Frid. | 24 | 133 37 18 ·6 | 139 39 28 ·3 | 5 15 37 ·7 | 5 15 39 ·2 | 23 ·0 | 19 21 ·8 |
| Sat. | 25 | 145 44 37 ·9 | 151 53 17 ·4 | 5 12 9 ·2 | 5 5 3 ·4 | 24 ·0 | 20 5 ·8 |
| *Sun.* | 26 | 158 5 54 ·3 | 164 22 52 ·9 | 4 54 19 ·9 | 4 39 57 ·8 | 25 ·0 | 20 50 ·5 |
| Mon. | 27 | 170 44 32 ·6 | 177 11 8 ·4 | 4 21 59 ·2 | 4 0 28 ·3 | 26 ·0 | 21 36 ·6 |
| Tues. | 28 | 183 42 50 ·4 | 190 19 42 ·6 | 3 35 33 ·3 | 3 7 25 ·7 | 27 ·0 | 22 24 ·9 |
| Wed. | 29 | 197 1 43 ·1 | 203 48 44 ·1 | 2 36 21 ·4 | 2 2 41 ·4 | 28 ·0 | 23 15 ·9 |
| Thur. | 30 | 210 40 31 ·8 | 217 36 46 ·5 | 1 26 50 ·7 | S. 0 49 18 ·9 | 29 ·0 | ♂ |
| Frid. | 31 | 224 37 3 ·6 | 231 40 53 ·8 | S. 0 10 39 ·6 | N. 0 28 29 ·4 | 0 ·5 | 0 10 ·2 |
| Sat. | 32 | 238 47 44 ·4 | 245 57 0 ·2 | N. 1 7 29 ·0 | N. 1 45 38 ·6 | 1 ·5 | 1 7 ·4 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 26 45 ·46 | S. 6 23 28 ·8 | 108 ·97 |
| 1 | 12 28 51 ·10 | 6 34 22 ·6 | 108 ·72 |
| 2 | 12 30 56 ·93 | 6 45 14 ·9 | 108 ·48 |
| 3 | 12 33 2 ·95 | 6 56 5 ·8 | 108 ·22 |
| 4 | 12 35 9 ·19 | 7 6 55 ·1 | 107 ·93 |
| 5 | 12 37 15 ·62 | 7 17 42 ·7 | 107 ·67 |
| 6 | 12 39 22 ·26 | 7 28 28 ·7 | 107 ·37 |
| 7 | 12 41 29 ·11 | 7 39 12 ·9 | 107 ·07 |
| 8 | 12 43 36 ·16 | 7 49 55 ·3 | 106 ·75 |
| 9 | 12 45 43 ·43 | 8 0 35 ·8 | 106 ·43 |
| 10 | 12 47 50 ·91 | 8 11 14 ·4 | 106 ·08 |
| 11 | 12 49 58 ·60 | 8 21 50 ·9 | 105 ·75 |
| 12 | 12 52 6 ·51 | 8 32 25 ·4 | 105 ·38 |
| 13 | 12 54 14 ·64 | 8 42 57 ·7 | 105 ·03 |
| 14 | 12 56 22 ·99 | 8 53 27 ·9 | 104 ·63 |
| 15 | 12 58 31 ·56 | 9 3 55 ·7 | 104 ·25 |
| 16 | 13 0 40 ·36 | 9 14 21 ·2 | 103 ·85 |
| 17 | 13 2 49 ·38 | 9 24 44 ·3 | 103 ·43 |
| 18 | 13 4 58 ·63 | 9 35 4 ·9 | 103 ·02 |
| 19 | 13 7 8 ·11 | 9 45 23 ·0 | 102 ·58 |
| 20 | 13 9 17 ·82 | 9 55 38 ·5 | 102 ·13 |
| 21 | 13 11 27 ·76 | 10 5 51 ·3 | 101 ·67 |
| 22 | 13 13 37 ·94 | 10 16 1 ·3 | 101 ·20 |
| 23 | 13 15 48 ·35 | S. 10 26 8 ·5 | 100 ·72 |
| | *THURSDAY* 2. | | |
| 0 | 13 17 59 ·00 | S. 10 36 12 ·8 | 100 ·23 |
| 1 | 13 20 9 ·89 | 10 46 14 ·2 | 99 ·72 |
| 2 | 13 22 21 ·01 | 10 56 12 ·5 | 99 ·20 |
| 3 | 13 24 32 ·37 | 11 6 7 ·7 | 98 ·68 |
| 4 | 13 26 43 ·98 | 11 15 59 ·8 | 98 ·15 |
| 5 | 13 28 55 ·83 | 11 25 48 ·7 | 97 ·58 |
| 6 | 13 31 7 ·93 | 11 35 34 ·2 | 97 ·03 |
| 7 | 13 33 20 ·27 | 11 45 16 ·4 | 96 ·45 |
| 8 | 13 35 32 ·85 | 11 54 55 ·1 | 95 ·87 |
| 9 | 13 37 45 ·69 | 12 4 30 ·3 | 95 ·28 |
| 10 | 13 39 58 ·77 | 12 14 2 ·0 | 94 ·67 |
| 11 | 13 42 12 ·10 | 12 23 30 ·0 | 94 ·05 |
| 12 | 13 44 25 ·68 | 12 32 54 ·3 | 93 ·42 |
| 13 | 13 46 39 ·51 | 12 42 14 ·8 | 92 ·78 |
| 14 | 13 48 53 ·59 | 12 51 31 ·5 | 92 ·12 |
| 15 | 13 51 7 ·92 | 13 0 44 ·2 | 91 ·45 |
| 16 | 13 53 22 ·50 | 13 9 52 ·9 | 90 ·78 |
| 17 | 13 55 37 ·34 | 13 18 57 ·6 | 90 ·10 |
| 18 | 13 57 52 ·43 | 13 27 58 ·2 | 89 ·38 |
| 19 | 14 0 7 ·77 | 13 36 54 ·5 | 88 ·68 |
| 20 | 14 2 23 ·37 | 13 45 46 ·6 | 87 ·95 |
| 21 | 14 4 39 ·22 | 13 54 34 ·3 | 87 ·23 |
| 22 | 14 6 55 ·32 | 14 3 17 ·7 | 86 ·48 |
| 23 | 14 9 11 ·68 | 14 11 56 ·6 | 85 ·72 |
| 24 | 14 11 28 ·30 | S. 14 20 30 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 3. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 11 28 ·30 | S. 14 20 30 ·9 | 84 ·95 |
| 1 | 14 13 45 ·18 | 14 29 0 ·6 | 84 ·18 |
| 2 | 14 16 2 ·30 | 14 37 25 ·7 | 83 ·38 |
| 3 | 14 18 19 ·67 | 14 45 46 ·0 | 82 ·58 |
| 4 | 14 20 37 ·30 | 14 54 1 ·5 | 81 ·77 |
| 5 | 14 22 55 ·18 | 15 2 12 ·1 | 80 ·95 |
| 6 | 14 25 13 ·31 | 15 10 17 ·8 | 80 ·10 |
| 7 | 14 27 31 ·69 | 15 18 18 ·4 | 79 ·27 |
| 8 | 14 29 50 ·33 | 15 26 14 ·0 | 78 ·40 |
| 9 | 14 32 9 ·21 | 15 34 4 ·4 | 77 ·53 |
| 10 | 14 34 28 ·35 | 15 41 49 ·6 | 76 ·65 |
| 11 | 14 36 47 ·73 | 15 49 29 ·5 | 75 ·77 |
| 12 | 14 39 7 ·36 | 15 57 4 ·1 | 74 ·87 |
| 13 | 14 41 27 ·24 | 16 4 33 ·3 | 73 ·93 |
| 14 | 14 43 47 ·36 | 16 11 56 ·9 | 73 ·03 |
| 15 | 14 46 7 ·73 | 16 19 15 ·1 | 72 ·08 |
| 16 | 14 48 28 ·35 | 16 26 27 ·6 | 71 ·13 |
| 17 | 14 50 49 ·21 | 16 33 34 ·5 | 70 ·18 |
| 18 | 14 53 10 ·30 | 16 40 35 ·6 | 69 ·22 |
| 19 | 14 55 31 ·64 | 16 47 30 ·9 | 68 ·25 |
| 20 | 14 57 53 ·22 | 16 54 20 ·4 | 67 ·25 |
| 21 | 15 0 15 ·03 | 17 1 3 ·9 | 66 ·27 |
| 22 | 15 2 37 ·08 | 17 7 41 ·5 | 65 ·27 |
| 23 | 15 4 59 ·36 | S. 17 14 13 ·1 | 64 ·23 |
| | *SATURDAY* 4. | | |
| 0 | 15 7 21 ·87 | S. 17 20 38 ·5 | 63 ·22 |
| 1 | 15 9 44 ·61 | 17 26 57 ·8 | 62 ·18 |
| 2 | 15 12 7 ·58 | 17 33 10 ·9 | 61 ·13 |
| 3 | 15 14 30 ·77 | 17 39 17 ·7 | 60 ·07 |
| 4 | 15 16 54 ·19 | 17 45 18 ·1 | 59 ·02 |
| 5 | 15 19 17 ·82 | 17 51 12 ·2 | 57 ·93 |
| 6 | 15 21 41 ·68 | 17 56 59 ·8 | 56 ·87 |
| 7 | 15 24 5 ·75 | 18 2 41 ·0 | 55 ·75 |
| 8 | 15 26 30 ·03 | 18 8 15 ·5 | 54 ·67 |
| 9 | 15 28 54 ·52 | 18 13 43 ·5 | 53 ·55 |
| 10 | 15 31 19 ·22 | 18 19 4 ·8 | 52 ·45 |
| 11 | 15 33 44 ·12 | 18 24 19 ·5 | 51 ·30 |
| 12 | 15 36 9 ·23 | 18 29 27 ·3 | 50 ·17 |
| 13 | 15 38 34 ·53 | 18 34 28 ·3 | 49 ·03 |
| 14 | 15 41 0 ·03 | 18 39 22 ·5 | 47 ·88 |
| 15 | 15 43 25 ·72 | 18 44 9 ·8 | 46 ·72 |
| 16 | 15 45 51 ·61 | 18 48 50 ·1 | 45 ·55 |
| 17 | 15 48 17 ·67 | 18 53 23 ·4 | 44 ·37 |
| 18 | 15 50 43 ·92 | 18 57 49 ·6 | 43 ·20 |
| 19 | 15 53 10 ·35 | 19 2 8 ·8 | 42 ·00 |
| 20 | 15 55 36 ·95 | 19 6 20 ·8 | 40 ·80 |
| 21 | 15 58 3 ·72 | 19 10 25 ·6 | 39 ·60 |
| 22 | 16 0 30 ·67 | 19 14 23 ·2 | 38 ·38 |
| 23 | 16 2 57 ·78 | 19 18 13 ·5 | 37 ·17 |
| 24 | 16 5 25 ·05 | S. 19 21 56 ·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SUNDAY* 5. | | |
| h m s | ° ′ ″ | ″ |
| 16 5 25·05 | S. 19 21 56·5 | 35·95 |
| 16 7 52·48 | 19 25 32·2 | 34·70 |
| 16 10 20·06 | 19 29 0·4 | 33·48 |
| 16 12 47·79 | 19 32 21·3 | 32·22 |
| 16 15 15·67 | 19 35 34·6 | 30·98 |
| 16 17 43·69 | 19 38 40·5 | 29·73 |
| 16 20 11·85 | 19 41 38·9 | 28·45 |
| 16 22 40·14 | 19 44 29·6 | 27·20 |
| 16 25 8·55 | 19 47 12·8 | 25·93 |
| 16 27 37·10 | 19 49 48·4 | 24·65 |
| 16 30 5·76 | 19 52 16·3 | 23·38 |
| 16 32 34·54 | 19 54 36·6 | 22·08 |
| 16 35 3·44 | 19 56 49·1 | 20·80 |
| 16 37 32·44 | 19 58 53·9 | 19·50 |
| 16 40 1·54 | 20 0 50·9 | 18·22 |
| 16 42 30·74 | 20 2 40·2 | 16·90 |
| 16 45 0·03 | 20 4 21·6 | 15·62 |
| 16 47 29·41 | 20 5 55·3 | 14·28 |
| 16 49 58·87 | 20 7 21·0 | 12·98 |
| 16 52 28·42 | 20 8 38·9 | 11·68 |
| 16 54 58·04 | 20 9 49·0 | 10·35 |
| 16 57 27·73 | 20 10 51·1 | 9·03 |
| 16 59 57·48 | 20 11 45·3 | 7·72 |
| 17 2 27·29 | S. 20 12 31·6 | 6·40 |
| *MONDAY* 6. | | |
| 17 4 57·16 | S. 20 13 10·0 | 5·07 |
| 17 7 27·08 | 20 13 40·4 | 3·73 |
| 17 9 57·05 | 20 14 2·8 | 2·42 |
| 17 12 27·06 | 20 14 17·3 | 1·08 |
| 17 14 57·10 | 20 14 23·8 | 0·23 |
| 17 17 27·18 | 20 14 22·4 | 1·58 |
| 17 19 57·28 | 20 14 12·9 | 2·90 |
| 17 22 27·40 | 20 13 55·5 | 4·25 |
| 17 24 57·54 | 20 13 30·0 | 5·57 |
| 17 27 27·69 | 20 12 56·6 | 6·90 |
| 17 29 57·85 | 20 12 15·2 | 8·22 |
| 17 32 28·01 | 20 11 25·9 | 9·57 |
| 17 34 58·17 | 20 10 28·5 | 10·88 |
| 17 37 28·32 | 20 9 23·2 | 12·22 |
| 17 39 58·46 | 20 8 9·9 | 13·55 |
| 17 42 28·59 | 20 6 48·6 | 14·87 |
| 17 44 58·69 | 20 5 19·4 | 16·18 |
| 17 47 28·76 | 20 3 42·3 | 17·52 |
| 17 49 58·81 | 20 1 57·2 | 18·83 |
| 17 52 28·82 | 20 0 4·2 | 20·17 |
| 17 54 58·79 | 19 58 3·2 | 21·47 |
| 17 57 28·71 | 19 55 54·4 | 22·78 |
| 17 59 58·59 | 19 53 37·7 | 24·08 |
| 18 2 28·41 | 19 51 13·2 | 25·40 |
| 18 4 58·18 | S. 19 48 40·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 18 4 58·18 | S. 19 48 40·8 | 26·70 |
| 1 | 18 7 27·88 | 19 46 0·6 | 28·02 |
| 2 | 18 9 57·52 | 19 43 12·5 | 29·30 |
| 3 | 18 12 27·09 | 19 40 16·7 | 30·58 |
| 4 | 18 14 56·58 | 19 37 13·2 | 31·88 |
| 5 | 18 17 25·99 | 19 34 1·9 | 33·17 |
| 6 | 18 19 55·32 | 19 30 42·9 | 34·45 |
| 7 | 18 22 24·56 | 19 27 16·2 | 35·73 |
| 8 | 18 24 53·71 | 19 23 41·8 | 36·98 |
| 9 | 18 27 22·76 | 19 19 59·9 | 38·27 |
| 10 | 18 29 51·72 | 19 16 10·3 | 39·52 |
| 11 | 18 32 20·57 | 19 12 13·2 | 40·77 |
| 12 | 18 34 49·31 | 19 8 8·6 | 42·02 |
| 13 | 18 37 17·95 | 19 3 56·5 | 43·27 |
| 14 | 18 39 46·47 | 18 59 36·9 | 44·50 |
| 15 | 18 42 14·87 | 18 55 9·9 | 45·73 |
| 16 | 18 44 43·16 | 18 50 35·5 | 46·95 |
| 17 | 18 47 11·32 | 18 45 53·8 | 48·17 |
| 18 | 18 49 39·35 | 18 41 4·8 | 49·38 |
| 19 | 18 52 7·25 | 18 36 8·5 | 50·60 |
| 20 | 18 54 35·02 | 18 31 4·9 | 51·78 |
| 21 | 18 57 2·65 | 18 25 54·2 | 52·97 |
| 22 | 18 59 30·14 | 18 20 36·4 | 54·17 |
| 23 | 19 1 57·48 | S. 18 15 11·4 | 55·33 |
| | *WEDNESDAY* 8. | | |
| 0 | 19 4 24·68 | S. 18 9 39·4 | 56·50 |
| 1 | 19 6 51·73 | 18 4 0·4 | 57·67 |
| 2 | 19 9 18·63 | 17 58 14·4 | 58·82 |
| 3 | 19 11 45·38 | 17 52 21·5 | 59·97 |
| 4 | 19 14 11·96 | 17 46 21·7 | 61·10 |
| 5 | 19 16 38·39 | 17 40 15·1 | 62·22 |
| 6 | 19 19 4·66 | 17 34 1·8 | 63·35 |
| 7 | 19 21 30·76 | 17 27 41·7 | 64·45 |
| 8 | 19 23 56·70 | 17 21 15·0 | 65·57 |
| 9 | 19 26 22·47 | 17 14 41·6 | 66·65 |
| 10 | 19 28 48·07 | 17 8 1·7 | 67·75 |
| 11 | 19 31 13·50 | 17 1 15·2 | 68·82 |
| 12 | 19 33 38·75 | 16 54 22·3 | 69·88 |
| 13 | 19 36 3·83 | 16 47 23·0 | 70·95 |
| 14 | 19 38 28·73 | 16 40 17·3 | 71·98 |
| 15 | 19 40 53·46 | 16 33 5·4 | 73·03 |
| 16 | 19 43 18·01 | 16 25 47·2 | 74·05 |
| 17 | 19 45 42·37 | 16 18 22·9 | 75·08 |
| 18 | 19 48 6·55 | 16 10 52·4 | 76·08 |
| 19 | 19 50 30·55 | 16 3 15·9 | 77·08 |
| 20 | 19 52 54·36 | 15 55 33·4 | 78·08 |
| 21 | 19 55 17·99 | 15 47 44·9 | 79·05 |
| 22 | 19 57 41·42 | 15 39 50·6 | 80·03 |
| 23 | 20 0 4·67 | 15 31 50·4 | 80·98 |
| 24 | 20 2 27·73 | S. 15 23 44·5 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 20 2 27 ·73 | S. 15 23 44 ·5 | 81 ·93 |
| 1 | 20 4 50 ·60 | 15 15 32 ·9 | 82 ·87 |
| 2 | 20 7 13 ·28 | 15 7 15 ·7 | 83 ·80 |
| 3 | 20 9 35 ·77 | 14 58 52 ·9 | 84 ·72 |
| 4 | 20 11 58 ·07 | 14 50 24 ·6 | 85 ·63 |
| 5 | 20 14 20 ·18 | 14 41 50 ·8 | 86 ·52 |
| 6 | 20 16 42 ·09 | 14 33 11 ·7 | 87 ·40 |
| 7 | 20 19 3 ·81 | 14 24 27 ·3 | 88 ·28 |
| 8 | 20 21 25 ·34 | 14 15 37 ·6 | 89 ·13 |
| 9 | 20 23 46 ·68 | 14 6 42 ·8 | 89 ·98 |
| 10 | 20 26 7 ·82 | 13 57 42 ·9 | 90 ·83 |
| 11 | 20 28 28 ·77 | 13 48 37 ·9 | 91 ·67 |
| 12 | 20 30 49 ·52 | 13 39 27 ·9 | 92 ·48 |
| 13 | 20 33 10 ·08 | 13 30 13 ·0 | 93 ·28 |
| 14 | 20 35 30 ·46 | 13 20 53 ·3 | 94 ·07 |
| 15 | 20 37 50 ·64 | 13 11 28 ·9 | 94 ·87 |
| 16 | 20 40 10 ·63 | 13 1 59 ·7 | 95 ·63 |
| 17 | 20 42 30 ·42 | 12 52 25 ·9 | 96 ·40 |
| 18 | 20 44 50 ·03 | 12 42 47 ·5 | 97 ·13 |
| 19 | 20 47 9 ·45 | 12 33 4 ·7 | 97 ·88 |
| 20 | 20 49 28 ·67 | 12 23 17 ·4 | 98 ·62 |
| 21 | 20 51 47 ·71 | 12 13 25 ·7 | 99 ·32 |
| 22 | 20 54 6 ·56 | 12 3 29 ·8 | 100 ·03 |
| 23 | 20 56 25 ·22 | S. 11 53 29 ·6 | 100 ·72 |
| | *FRIDAY* 10. | | |
| 0 | 20 58 43 ·69 | S. 11 43 25 ·3 | 101 ·40 |
| 1 | 21 1 1 ·98 | 11 33 16 ·9 | 102 ·07 |
| 2 | 21 3 20 ·08 | 11 23 4 ·5 | 102 ·72 |
| 3 | 21 5 38 ·01 | 11 12 48 ·2 | 103 ·37 |
| 4 | 21 7 55 ·75 | 11 2 28 ·0 | 103 ·98 |
| 5 | 21 10 13 ·30 | 10 52 4 ·1 | 104 ·62 |
| 6 | 21 12 30 ·68 | 10 41 36 ·4 | 105 ·23 |
| 7 | 21 14 47 ·88 | 10 31 5 ·0 | 105 ·82 |
| 8 | 21 17 4 ·91 | 10 20 30 ·1 | 106 ·40 |
| 9 | 21 19 21 ·75 | 10 9 51 ·7 | 106 ·98 |
| 10 | 21 21 38 ·42 | 9 59 9 ·8 | 107 ·53 |
| 11 | 21 23 54 ·92 | 9 48 24 ·6 | 108 ·08 |
| 12 | 21 26 11 ·25 | 9 37 36 ·1 | 108 ·62 |
| 13 | 21 28 27 ·41 | 9 26 44 ·4 | 109 ·15 |
| 14 | 21 30 43 ·40 | 9 15 49 ·5 | 109 ·67 |
| 15 | 21 32 59 ·22 | 9 4 51 ·5 | 110 ·15 |
| 16 | 21 35 14 ·88 | 8 53 50 ·6 | 110 ·65 |
| 17 | 21 37 30 ·37 | 8 42 46 ·7 | 111 ·12 |
| 18 | 21 39 45 ·71 | 8 31 40 ·0 | 111 ·58 |
| 19 | 21 42 0 ·88 | 8 20 30 ·5 | 112 ·03 |
| 20 | 21 44 15 ·90 | 8 9 18 ·3 | 112 ·48 |
| 21 | 21 46 30 ·76 | 7 58 3 ·4 | 112 ·88 |
| 22 | 21 48 45 ·47 | 7 46 46 ·1 | 113 ·32 |
| 23 | 21 51 0 ·02 | 7 35 26 ·2 | 113 ·72 |
| 24 | 21 53 14 ·42 | S. 7 24 3 ·9 | |

| Hour. | Right Ascension. | Declination. | Diff. for |
|---|---|---|---|
| | *SATURDAY* 11. | | |
| | h m s | ° ′ ″ | |
| 0 | 21 53 14 ·42 | S. 7 24 3 ·9 | 11 |
| 1 | 21 55 28 ·68 | 7 12 39 ·3 | 11 |
| 2 | 21 57 42 ·78 | 7 1 12 ·4 | 11 |
| 3 | 21 59 56 ·74 | 6 49 43 ·3 | 11 |
| 4 | 22 2 10 ·56 | 6 38 12 ·2 | 11 |
| 5 | 22 4 24 ·24 | 6 26 38 ·9 | 11 |
| 6 | 22 6 37 ·79 | 6 15 3 ·7 | 11 |
| 7 | 22 8 51 ·19 | 6 3 26 ·7 | 11 |
| 8 | 22 11 4 ·46 | 5 51 47 ·7 | 11 |
| 9 | 22 13 17 ·61 | 5 40 7 ·1 | 11 |
| 10 | 22 15 30 ·62 | 5 28 24 ·7 | 11 |
| 11 | 22 17 43 ·50 | 5 16 40 ·8 | 11 |
| 12 | 22 19 56 ·26 | 5 4 55 ·3 | 11 |
| 13 | 22 22 8 ·90 | 4 53 8 ·4 | 11 |
| 14 | 22 24 21 ·41 | 4 41 20 ·0 | 11 |
| 15 | 22 26 33 ·81 | 4 29 30 ·4 | 11 |
| 16 | 22 28 46 ·09 | 4 17 39 ·5 | 11 |
| 17 | 22 30 58 ·26 | 4 5 47 ·5 | 11 |
| 18 | 22 33 10 ·32 | 3 53 54 ·3 | 11 |
| 19 | 22 35 22 ·26 | 3 42 0 ·1 | 11 |
| 20 | 22 37 34 ·10 | 3 30 5 ·0 | 11 |
| 21 | 22 39 45 ·84 | 3 18 9 ·0 | 11 |
| 22 | 22 41 57 ·47 | 3 6 12 ·2 | 11 |
| 23 | 22 44 9 ·01 | S. 2 54 14 ·6 | 11 |
| | *SUNDAY* 12. | | |
| 0 | 22 46 20 ·44 | S. 2 42 16 ·4 | 11 |
| 1 | 22 48 31 ·78 | 2 30 17 ·6 | 11 |
| 2 | 22 50 43 ·03 | 2 18 18 ·2 | 11 |
| 3 | 22 52 54 ·19 | 2 6 18 ·4 | 12 |
| 4 | 22 55 5 ·26 | 1 54 18 ·2 | 12 |
| 5 | 22 57 16 ·24 | 1 42 17 ·7 | 12 |
| 6 | 22 59 27 ·14 | 1 30 17 ·0 | 12 |
| 7 | 23 1 37 ·96 | 1 18 16 ·1 | 12 |
| 8 | 23 3 48 ·70 | 1 6 15 ·1 | 12 |
| 9 | 23 5 59 ·36 | 0 54 14 ·1 | 12 |
| 10 | 23 8 9 ·95 | 0 42 13 ·2 | 12 |
| 11 | 23 10 20 ·46 | 0 30 12 ·3 | 12 |
| 12 | 23 12 30 ·91 | 0 18 11 ·7 | 12 |
| 13 | 23 14 41 ·29 | S. 0 6 11 ·3 | 12 |
| 14 | 23 16 51 ·61 | N. 0 5 48 ·7 | 11 |
| 15 | 23 19 1 ·86 | 0 17 48 ·4 | 11 |
| 16 | 23 21 12 ·05 | 0 29 47 ·5 | 11 |
| 17 | 23 23 22 ·18 | 0 41 46 ·2 | 11 |
| 18 | 23 25 32 ·26 | 0 53 44 ·2 | 11 |
| 19 | 23 27 42 ·29 | 1 5 41 ·6 | 11 |
| 20 | 23 29 52 ·26 | 1 17 38 ·2 | 11 |
| 21 | 23 32 2 ·18 | 1 29 34 ·0 | 11 |
| 22 | 23 34 12 ·06 | 1 41 28 ·9 | 11 |
| 23 | 23 36 21 ·89 | 1 53 22 ·9 | 11 |
| 24 | 23 38 31 ·68 | N. 2 5 15 ·9 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| r. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *MONDAY* 13. | | |
| | h m s | ° ′ ″ | ″ |
| | 23 38 31 ·68 | N. 2 5 15 ·9 | 118 ·65 |
| | 23 40 41 ·43 | 2 17 7 ·8 | 118 ·47 |
| | 23 42 51 ·14 | 2 28 58 ·6 | 118 ·25 |
| | 23 45 0 ·82 | 2 40 48 ·1 | 118 ·05 |
| | 23 47 10 ·46 | 2 52 36 ·4 | 117 ·82 |
| | 23 49 20 ·07 | 3 4 23 ·3 | 117 ·58 |
| | 23 51 29 ·65 | 3 16 8 ·8 | 117 ·33 |
| | 23 53 39 ·20 | 3 27 52 ·8 | 117 ·07 |
| | 23 55 48 ·73 | 3 39 35 ·2 | 116 ·82 |
| | 23 57 58 ·23 | 3 51 16 ·1 | 116 ·53 |
| | 0 0 7 ·71 | 4 2 55 ·3 | 116 ·23 |
| | 0 2 17 ·17 | 4 14 32 ·7 | 115 ·93 |
| | 0 4 26 ·62 | 4 26 8 ·3 | 115 ·62 |
| | 0 6 36 ·05 | 4 37 42 ·0 | 115 ·30 |
| | 0 8 45 ·46 | 4 49 13 ·8 | 114 ·97 |
| | 0 10 54 ·86 | 5 0 43 ·6 | 114 ·63 |
| | 0 13 4 ·25 | 5 12 11 ·4 | 114 ·27 |
| | 0 15 13 ·63 | 5 23 37 ·0 | 113 ·90 |
| | 0 17 23 ·01 | 5 35 0 ·4 | 113 ·53 |
| | 0 19 32 ·37 | 5 46 21 ·6 | 113 ·13 |
| | 0 21 41 ·74 | 5 57 40 ·4 | 112 ·75 |
| | 0 23 51 ·10 | 6 8 56 ·9 | 112 ·35 |
| | 0 26 0 ·47 | 6 20 11 ·0 | 111 ·93 |
| | 0 28 9 ·83 | N. 6 31 22 ·6 | 111 ·50 |
| | *TUESDAY* 14. | | |
| | 0 30 19 ·20 | N. 6 42 31 ·6 | 111 ·07 |
| | 0 32 28 ·57 | 6 53 38 ·0 | 110 ·63 |
| | 0 34 37 ·95 | 7 4 41 ·8 | 110 ·17 |
| | 0 36 47 ·34 | 7 15 42 ·8 | 109 ·70 |
| | 0 38 56 ·73 | 7 26 41 ·0 | 109 ·23 |
| | 0 41 6 ·14 | 7 37 36 ·4 | 108 ·75 |
| | 0 43 15 ·56 | 7 48 28 ·9 | 108 ·25 |
| | 0 45 24 ·99 | 7 59 18 ·4 | 107 ·75 |
| | 0 47 34 ·43 | 8 10 4 ·9 | 107 ·22 |
| | 0 49 43 ·89 | 8 20 48 ·2 | 106 ·72 |
| | 0 51 53 ·37 | 8 31 28 ·5 | 106 ·17 |
| | 0 54 2 ·87 | 8 42 5 ·5 | 105 ·63 |
| | 0 56 12 ·38 | 8 52 39 ·3 | 105 ·08 |
| | 0 58 21 ·92 | 9 3 9 ·8 | 104 ·50 |
| | 1 0 31 ·47 | 9 13 36 ·8 | 103 ·95 |
| | 1 2 41 ·05 | 9 24 0 ·5 | 103 ·37 |
| | 1 4 50 ·66 | 9 34 20 ·7 | 102 ·77 |
| | 1 7 0 ·28 | 9 44 37 ·3 | 102 ·18 |
| | 1 9 9 ·94 | 9 54 50 ·4 | 101 ·58 |
| | 1 11 19 ·62 | 10 4 59 ·9 | 100 ·95 |
| | 1 13 29 ·32 | 10 15 5 ·6 | 100 ·33 |
| | 1 15 39 ·06 | 10 25 7 ·6 | 99 ·72 |
| | 1 17 48 ·82 | 10 35 5 ·9 | 99 ·07 |
| | 1 19 58 ·61 | 10 45 0 ·3 | 98 ·42 |
| | 1 22 8 ·43 | N.10 54 50 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *WEDNESDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 22 8 ·43 | N.10 54 50 ·8 | 97 ·77 |
| 1 | 1 24 18 ·29 | 11 4 37 ·4 | 97 ·10 |
| 2 | 1 26 28 ·17 | 11 14 20 ·0 | 96 ·43 |
| 3 | 1 28 38 ·09 | 11 23 58 ·6 | 95 ·75 |
| 4 | 1 30 48 ·04 | 11 33 33 ·1 | 95 ·05 |
| 5 | 1 32 58 ·02 | 11 43 3 ·4 | 94 ·37 |
| 6 | 1 35 8 ·04 | 11 52 29 ·6 | 93 ·65 |
| 7 | 1 37 18 ·08 | 12 1 51 ·5 | 92 ·95 |
| 8 | 1 39 28 ·17 | 12 11 9 ·2 | 92 ·22 |
| 9 | 1 41 38 ·28 | 12 20 22 ·5 | 91 ·50 |
| 10 | 1 43 48 ·44 | 12 29 31 ·5 | 90 ·77 |
| 11 | 1 45 58 ·62 | 12 38 36 ·1 | 90 ·02 |
| 12 | 1 48 8 ·84 | 12 47 36 ·2 | 89 ·27 |
| 13 | 1 50 19 ·10 | 12 56 31 ·8 | 88 ·52 |
| 14 | 1 52 29 ·39 | 13 5 22 ·9 | 87 ·73 |
| 15 | 1 54 39 ·72 | 13 14 9 ·3 | 86 ·98 |
| 16 | 1 56 50 ·08 | 13 22 51 ·2 | 86 ·18 |
| 17 | 1 59 0 ·48 | 13 31 28 ·3 | 85 ·42 |
| 18 | 2 1 10 ·91 | 13 40 0 ·8 | 84 ·62 |
| 19 | 2 3 21 ·38 | 13 48 28 ·5 | 83 ·82 |
| 20 | 2 5 31 ·88 | 13 56 51 ·4 | 83 ·02 |
| 21 | 2 7 42 ·42 | 14 5 9 ·5 | 82 ·20 |
| 22 | 2 9 52 ·99 | 14 13 22 ·7 | 81 ·38 |
| 23 | 2 12 3 ·60 | N.14 21 31 ·0 | 80 ·57 |
| | *THURSDAY* 16. | | |
| 0 | 2 14 14 ·24 | N.14 29 34 ·4 | 79 ·73 |
| 1 | 2 16 24 ·91 | 14 37 32 ·8 | 78 ·90 |
| 2 | 2 18 35 ·62 | 14 45 26 ·2 | 78 ·05 |
| 3 | 2 20 46 ·36 | 14 53 14 ·5 | 77 ·20 |
| 4 | 2 22 57 ·12 | 15 0 57 ·7 | 76 ·35 |
| 5 | 2 25 7 ·93 | 15 8 35 ·8 | 75 ·50 |
| 6 | 2 27 18 ·76 | 15 16 8 ·8 | 74 ·62 |
| 7 | 2 29 29 ·62 | 15 23 36 ·5 | 73 ·77 |
| 8 | 2 31 40 ·51 | 15 30 59 ·1 | 72 ·87 |
| 9 | 2 33 51 ·43 | 15 38 16 ·3 | 72 ·02 |
| 10 | 2 36 2 ·38 | 15 45 28 ·4 | 71 ·10 |
| 11 | 2 38 13 ·35 | 15 52 35 ·0 | 70 ·23 |
| 12 | 2 40 24 ·35 | 15 59 36 ·4 | 69 ·33 |
| 13 | 2 42 35 ·38 | 16 6 32 ·4 | 68 ·42 |
| 14 | 2 44 46 ·43 | 16 13 22 ·9 | 67 ·53 |
| 15 | 2 46 57 ·50 | 16 20 8 ·1 | 66 ·60 |
| 16 | 2 49 8 ·60 | 16 26 47 ·7 | 65 ·70 |
| 17 | 2 51 19 ·72 | 16 33 21 ·9 | 64 ·78 |
| 18 | 2 53 30 ·86 | 16 39 50 ·6 | 63 ·85 |
| 19 | 2 55 42 ·02 | 16 46 13 ·7 | 62 ·93 |
| 20 | 2 57 53 ·19 | 16 52 31 ·3 | 62 ·00 |
| 21 | 3 0 4 ·38 | 16 58 43 ·3 | 61 ·05 |
| 22 | 3 2 15 ·59 | 17 4 49 ·6 | 60 ·12 |
| 23 | 3 4 26 ·81 | 17 10 50 ·3 | 59 ·18 |
| 24 | 3 6 38 ·05 | N.17 16 45 ·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 3 6 38 ·05 | N.17 16 45 ·4 | 58 ·23 |
| 1 | 3 8 49 ·30 | 17 22 34 ·8 | 57 ·27 |
| 2 | 3 11 0 ·56 | 17 28 18 ·4 | 56 ·33 |
| 3 | 3 13 11 ·82 | 17 33 56 ·4 | 55 ·37 |
| 4 | 3 15 23 ·10 | 17 39 28 ·6 | 54 ·40 |
| 5 | 3 17 34 ·38 | 17 44 55 ·0 | 53 ·45 |
| 6 | 3 19 45 ·67 | 17 50 15 ·7 | 52 ·48 |
| 7 | 3 21 56 ·96 | 17 55 30 ·6 | 51 ·50 |
| 8 | 3 24 8 ·26 | 18 0 39 ·6 | 50 ·53 |
| 9 | 3 26 19 ·55 | 18 5 42 ·8 | 49 ·57 |
| 10 | 3 28 30 ·85 | 18 10 40 ·2 | 48 ·58 |
| 11 | 3 30 42 ·14 | 18 15 31 ·7 | 47 ·60 |
| 12 | 3 32 53 ·42 | 18 20 17 ·3 | 46 ·62 |
| 13 | 3 35 4 ·70 | 18 24 57 ·0 | 45 ·63 |
| 14 | 3 37 15 ·98 | 18 29 30 ·8 | 44 ·65 |
| 15 | 3 39 27 ·24 | 18 33 58 ·7 | 43 ·67 |
| 16 | 3 41 38 ·49 | 18 38 20 ·7 | 42 ·67 |
| 17 | 3 43 49 ·74 | 18 42 36 ·7 | 41 ·68 |
| 18 | 3 46 0 ·96 | 18 46 46 ·8 | 40 ·68 |
| 19 | 3 48 12 ·18 | 18 50 50 ·9 | 39 ·68 |
| 20 | 3 50 23 ·37 | 18 54 49 ·0 | 38 ·70 |
| 21 | 3 52 34 ·54 | 18 58 41 ·2 | 37 ·68 |
| 22 | 3 54 45 ·70 | 19 2 27 ·3 | 36 ·70 |
| 23 | 3 56 56 ·83 | N.19 6 7 ·5 | 35 ·68 |
| | *SATURDAY* 18. | | |
| 0 | 3 59 7 ·93 | N.19 9 41 ·6 | 34 ·68 |
| 1 | 4 1 19 ·01 | 19 13 9 ·7 | 33 ·68 |
| 2 | 4 3 30 ·06 | 19 16 31 ·8 | 32 ·68 |
| 3 | 4 5 41 ·07 | 19 19 47 ·9 | 31 ·67 |
| 4 | 4 7 52 ·06 | 19 22 57 ·9 | 30 ·68 |
| 5 | 4 10 3 ·01 | 19 26 2 ·0 | 29 ·65 |
| 6 | 4 12 13 ·93 | 19 28 59 ·9 | 28 ·67 |
| 7 | 4 14 24 ·81 | 19 31 51 ·9 | 27 ·65 |
| 8 | 4 16 35 ·64 | 19 34 37 ·8 | 26 ·63 |
| 9 | 4 18 46 ·44 | 19 37 17 ·6 | 25 ·63 |
| 10 | 4 20 57 ·19 | 19 39 51 ·4 | 24 ·63 |
| 11 | 4 23 7 ·90 | 19 42 19 ·2 | 23 ·62 |
| 12 | 4 25 18 ·57 | 19 44 40 ·9 | 22 ·62 |
| 13 | 4 27 29 ·18 | 19 46 56 ·6 | 21 ·60 |
| 14 | 4 29 39 ·75 | 19 49 6 ·2 | 20 ·60 |
| 15 | 4 31 50 ·26 | 19 51 9 ·8 | 19 ·58 |
| 16 | 4 34 0 ·72 | 19 53 7 ·3 | 18 ·60 |
| 17 | 4 36 11 ·12 | 19 54 58 ·9 | 17 ·57 |
| 18 | 4 38 21 ·46 | 19 56 44 ·3 | 16 ·58 |
| 19 | 4 40 31 ·74 | 19 58 23 ·8 | 15 ·57 |
| 20 | 4 42 41 ·96 | 19 59 57 ·2 | 14 ·57 |
| 21 | 4 44 52 ·11 | 20 1 24 ·6 | 13 ·57 |
| 22 | 4 47 2 ·20 | 20 2 46 ·0 | 12 ·55 |
| 23 | 4 49 12 ·22 | 20 4 1 ·3 | 11 ·57 |
| *24* | *4 51 22 ·17* | N.20 5 10 ·7 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *SUNDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 4 51 22 ·17 | N.20 5 10 ·7 |
| 1 | 4 53 32 ·05 | 20 6 14 ·1 |
| 2 | 4 55 41 ·86 | 20 7 11 ·4 |
| 3 | 4 57 51 ·59 | 20 8 2 ·8 |
| 4 | 5 0 1 ·25 | 20 8 48 ·2 |
| 5 | 5 2 10 ·83 | 20 9 27 ·7 |
| 6 | 5 4 20 ·33 | 20 10 1 ·2 |
| 7 | 5 6 29 ·74 | 20 10 28 ·7 |
| 8 | 5 8 39 ·08 | 20 10 50 ·3 |
| 9 | 5 10 48 ·33 | 20 11 6 ·0 |
| 10 | 5 12 57 ·49 | 20 11 15 ·8 |
| 11 | 5 15 6 ·56 | 20 11 19 ·6 |
| 12 | 5 17 15 ·55 | 20 11 17 ·6 |
| 13 | 5 19 24 ·45 | 20 11 9 ·7 |
| 14 | 5 21 33 ·25 | 20 10 55 ·9 |
| 15 | 5 23 41 ·95 | 20 10 36 ·3 |
| 16 | 5 25 50 ·57 | 20 10 10 ·8 |
| 17 | 5 27 59 ·08 | 20 9 39 ·5 |
| 18 | 5 30 7 ·50 | 20 9 2 ·5 |
| 19 | 5 32 15 ·81 | 20 8 19 ·6 |
| 20 | 5 34 24 ·03 | 20 7 30 ·9 |
| 21 | 5 36 32 ·14 | 20 6 36 ·5 |
| 22 | 5 38 40 ·15 | 20 5 36 ·3 |
| 23 | 5 40 48 ·05 | N.20 4 30 ·4 |
| | *MONDAY* 20. | |
| 0 | 5 42 55 ·85 | N.20 3 18 ·8 |
| 1 | 5 45 3 ·54 | 20 2 1 ·5 |
| 2 | 5 47 11 ·12 | 20 0 38 ·5 |
| 3 | 5 49 18 ·58 | 19 59 9 ·9 |
| 4 | 5 51 25 ·94 | 19 57 35 ·6 |
| 5 | 5 53 33 ·18 | 19 55 55 ·7 |
| 6 | 5 55 40 ·31 | 19 54 10 ·2 |
| 7 | 5 57 47 ·33 | 19 52 19 ·1 |
| 8 | 5 59 54 ·23 | 19 50 22 ·5 |
| 9 | 6 2 1 ·01 | 19 48 20 ·3 |
| 10 | 6 4 7 ·68 | 19 46 12 ·6 |
| 11 | 6 6 14 ·23 | 19 43 59 ·3 |
| 12 | 6 8 20 ·66 | 19 41 40 ·6 |
| 13 | 6 10 26 ·97 | 19 39 16 ·4 |
| 14 | 6 12 33 ·16 | 19 36 46 ·8 |
| 15 | 6 14 39 ·23 | 19 34 11 ·7 |
| 16 | 6 16 45 ·17 | 19 31 31 ·2 |
| 17 | 6 18 50 ·99 | 19 28 45 ·4 |
| 18 | 6 20 56 ·69 | 19 25 54 ·2 |
| 19 | 6 23 2 ·27 | 19 22 57 ·6 |
| 20 | 6 25 7 ·72 | 19 19 55 ·8 |
| 21 | 6 27 13 ·04 | 19 16 48 ·6 |
| 22 | 6 29 18 ·24 | 19 13 36 ·2 |
| 23 | 6 31 23 ·31 | 19 10 18 ·5 |
| 24 | 6 33 28 ·25 | N.19 6 55 ·6 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| r. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| | 6 33 28·25 | N.19 6 55·6 | 34·68 |
| | 6 35 33·07 | 19 3 27·5 | 35·55 |
| | 6 37 37·76 | 18 59 54·2 | 36·40 |
| | 6 39 42·32 | 18 56 15·8 | 37·25 |
| | 6 41 46·75 | 18 52 32·3 | 38·12 |
| | 6 43 51·06 | 18 48 43·6 | 38·95 |
| | 6 45 55·24 | 18 44 49·9 | 39·80 |
| | 6 47 59·29 | 18 40 51·1 | 40·65 |
| | 6 50 3·21 | 18 36 47·2 | 41·47 |
| | 6 52 7·00 | 18 32 38·4 | 42·30 |
| | 6 54 10·67 | 18 28 24·6 | 43·13 |
| | 6 56 14·20 | 18 24 5·8 | 43·95 |
| | 6 58 17·61 | 18 19 42·1 | 44·77 |
| | 7 0 20·89 | 18 15 13·5 | 45·58 |
| | 7 2 24·04 | 18 10 40·0 | 46·38 |
| | 7 4 27·06 | 18 6 1·7 | 47·20 |
| | 7 6 29·96 | 18 1 18·5 | 48·00 |
| | 7 8 32·73 | 17 56 30·5 | 48·80 |
| | 7 10 35·37 | 17 51 37·7 | 49·58 |
| | 7 12 37·88 | 17 46 40·2 | 50·37 |
| | 7 14 40·27 | 17 41 38·0 | 51·17 |
| | 7 16 42·53 | 17 36 31·0 | 51·93 |
| | 7 18 44·67 | 17 31 19·4 | 52·72 |
| | 7 20 46·68 | N.17 26 3·1 | 53·48 |
| | *WEDNESDAY* 22. | | |
| | 7 22 48·57 | N.17 20 42·2 | 54·25 |
| | 7 24 50·33 | 17 15 16·7 | 55·02 |
| | 7 26 51·97 | 17 9 46·6 | 55·77 |
| | 7 28 53·49 | 17 4 12·0 | 56·52 |
| | 7 30 54·89 | 16 58 32·9 | 57·28 |
| | 7 32 56·16 | 16 52 49·2 | 58·02 |
| | 7 34 57·32 | 16 47 1·1 | 58·75 |
| | 7 36 58·35 | 16 41 8·6 | 59·50 |
| | 7 38 59·27 | 16 35 11·6 | 60·22 |
| | 7 41 0·07 | 16 29 10·3 | 60·95 |
| | 7 43 0·75 | 16 23 4·6 | 61·67 |
| | 7 45 1·32 | 16 16 54·6 | 62·38 |
| | 7 47 1·77 | 16 10 40·3 | 63·10 |
| | 7 49 2·11 | 16 4 21·7 | 63·80 |
| | 7 51 2·33 | 15 57 58·9 | 64·52 |
| | 7 53 2·45 | 15 51 31·8 | 65·20 |
| | 7 55 2·45 | 15 45 0·6 | 65·92 |
| | 7 57 2·34 | 15 38 25·1 | 66·58 |
| | 7 59 2·13 | 15 31 45·6 | 67·28 |
| | 8 1 1·81 | 15 25 1·9 | 67·95 |
| | 8 3 1·39 | 15 18 14·2 | 68·63 |
| | 8 5 0·86 | 15 11 22·4 | 69·32 |
| | 8 7 0·23 | 15 4 26·5 | 69·97 |
| | 8 8 59·49 | 14 57 26·7 | 70·63 |
| | 8 10 58·66 | N.14 50 22·9 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *THURSDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 10 58·66 | N.14 50 22·9 | 71·28 |
| 1 | 8 12 57·73 | 14 43 15·2 | 71·95 |
| 2 | 8 14 56·70 | 14 36 3·5 | 72·60 |
| 3 | 8 16 55·57 | 14 28 47·9 | 73·23 |
| 4 | 8 18 54·35 | 14 21 28·5 | 73·87 |
| 5 | 8 20 53·04 | 14 14 5·3 | 74·52 |
| 6 | 8 22 51·64 | 14 6 38·2 | 75·13 |
| 7 | 8 24 50·15 | 13 59 7·4 | 75·77 |
| 8 | 8 26 48·57 | 13 51 32·8 | 76·38 |
| 9 | 8 28 46·91 | 13 43 54·5 | 77·00 |
| 10 | 8 30 45·16 | 13 36 12·5 | 77·60 |
| 11 | 8 32 43·33 | 13 28 26·9 | 78·22 |
| 12 | 8 34 41·41 | 13 20 37·6 | 78·82 |
| 13 | 8 36 39·42 | 13 12 44·7 | 79·42 |
| 14 | 8 38 37·35 | 13 4 48·2 | 80·00 |
| 15 | 8 40 35·21 | 12 56 48·2 | 80·60 |
| 16 | 8 42 32·99 | 12 48 44·6 | 81·17 |
| 17 | 8 44 30·70 | 12 40 37·6 | 81·75 |
| 18 | 8 46 28·35 | 12 32 27·1 | 82·33 |
| 19 | 8 48 25·92 | 12 24 13·1 | 82·88 |
| 20 | 8 50 23·43 | 12 15 55·8 | 83·47 |
| 21 | 8 52 20·88 | 12 7 35·0 | 84·02 |
| 22 | 8 54 18·26 | 11 59 10·9 | 84·57 |
| 23 | 8 56 15·59 | N.11 50 43·5 | 85·12 |
| | *FRIDAY* 24. | | |
| 0 | 8 58 12·85 | N.11 42 12·8 | 85·67 |
| 1 | 9 0 10·06 | 11 33 38·8 | 86·18 |
| 2 | 9 2 7·22 | 11 25 1·7 | 86·73 |
| 3 | 9 4 4·33 | 11 16 21·3 | 87·27 |
| 4 | 9 6 1·40 | 11 7 37·7 | 87·78 |
| 5 | 9 7 58·41 | 10 58 51·0 | 88·32 |
| 6 | 9 9 55·38 | 10 50 1·1 | 88·82 |
| 7 | 9 11 52·31 | 10 41 8·2 | 89·33 |
| 8 | 9 13 49·20 | 10 32 12·2 | 89·83 |
| 9 | 9 15 46·05 | 10 23 13·2 | 90·33 |
| 10 | 9 17 42·87 | 10 14 11·2 | 90·83 |
| 11 | 9 19 39·65 | 10 5 6·2 | 91·32 |
| 12 | 9 21 36·40 | 9 55 58·3 | 91·80 |
| 13 | 9 23 33·13 | 9 46 47·5 | 92·30 |
| 14 | 9 25 29·83 | 9 37 33·7 | 92·75 |
| 15 | 9 27 26·51 | 9 28 17·2 | 93·23 |
| 16 | 9 29 23·16 | 9 18 57·8 | 93·70 |
| 17 | 9 31 19·80 | 9 9 35·6 | 94·15 |
| 18 | 9 33 16·43 | 9 0 10·7 | 94·60 |
| 19 | 9 35 13·04 | 8 50 43·1 | 95·07 |
| 20 | 9 37 9·64 | 8 41 12·7 | 95·48 |
| 21 | 9 39 6·23 | 8 31 39·8 | 95·93 |
| 22 | 9 41 2·82 | 8 22 4·2 | 96·37 |
| 23 | 9 42 59·41 | 8 12 26·0 | 96·80 |
| 24 | 9 44 55·99 | N. 8 2 45·2 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. |
|---|---|---|---|---|---|---|
| | *SATURDAY* 25. | | | | *MONDAY* 27. | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ |
| 0 | 9 44 55 ·99 | N.8 2 45 ·2 | 97 ·22 | 0 | 11 19 6 ·75 | S.0 20 35 ·4 |
| 1 | 9 46 52 ·58 | 7 53 1 ·9 | 97 ·62 | 1 | 11 21 6 ·81 | 0 31 37 ·2 |
| 2 | 9 48 49 ·17 | 7 43 16 ·2 | 98 ·03 | 2 | 11 23 7 ·01 | 0 42 39 ·6 |
| 3 | 9 50 45 ·78 | 7 33 28 ·0 | 98 ·45 | 3 | 11 25 7 ·36 | 0 53 42 ·6 |
| 4 | 9 52 42 ·39 | 7 23 37 ·3 | 98 ·83 | 4 | 11 27 7 ·86 | 1 4 46 ·1 |
| 5 | 9 54 39 ·02 | 7 13 44 ·3 | 99 ·23 | 5 | 11 29 8 ·51 | 1 15 50 ·0 |
| 6 | 9 56 35 ·66 | 7 3 48 ·9 | 99 ·63 | 6 | 11 31 9 ·33 | 1 26 54 ·4 |
| 7 | 9 58 32 ·32 | 6 53 51 ·1 | 100 ·00 | 7 | 11 33 10 ·30 | 1 37 59 ·1 |
| 8 | 10 0 29 ·00 | 6 43 51 ·1 | 100 ·38 | 8 | 11 35 11 ·44 | 1 49 4 ·2 |
| 9 | 10 2 25 ·70 | 6 33 48 ·8 | 100 ·75 | 9 | 11 37 12 ·74 | 2 0 9 ·5 |
| 10 | 10 4 22 ·44 | 6 23 44 ·3 | 101 ·12 | 10 | 11 39 14 ·21 | 2 11 15 ·0 |
| 11 | 10 6 19 ·20 | 6 13 37 ·6 | 101 ·48 | 11 | 11 41 15 ·86 | 2 22 20 ·7 |
| 12 | 10 8 15 ·99 | 6 3 28 ·7 | 101 ·83 | 12 | 11 43 17 ·68 | 2 33 26 ·5 |
| 13 | 10 10 12 ·82 | 5 53 17 ·7 | 102 ·18 | 13 | 11 45 19 ·68 | 2 44 32 ·4 |
| 14 | 10 12 9 ·69 | 5 43 4 ·6 | 102 ·53 | 14 | 11 47 21 ·86 | 2 55 38 ·2 |
| 15 | 10 14 6 ·60 | 5 32 49 ·4 | 102 ·87 | 15 | 11 49 24 ·22 | 3 6 44 ·0 |
| 16 | 10 16 3 ·55 | 5 22 32 ·2 | 103 ·20 | 16 | 11 51 26 ·77 | 3 17 49 ·7 |
| 17 | 10 18 0 ·55 | 5 12 13 ·0 | 103 ·52 | 17 | 11 53 29 ·51 | 3 28 55 ·2 |
| 18 | 10 19 57 ·59 | 5 1 51 ·9 | 103 ·83 | 18 | 11 55 32 ·44 | 3 40 0 ·6 |
| 19 | 10 21 54 ·70 | 4 51 28 ·9 | 104 ·15 | 19 | 11 57 35 ·57 | 3 51 5 ·6 |
| 20 | 10 23 51 ·85 | 4 41 4 ·0 | 104 ·47 | 20 | 11 59 38 ·90 | 4 2 10 ·3 |
| 21 | 10 25 49 ·07 | 4 30 37 ·2 | 104 ·75 | 21 | 12 1 42 ·43 | 4 13 14 ·6 |
| 22 | 10 27 46 ·34 | 4 20 8 ·7 | 105 ·07 | 22 | 12 3 46 ·16 | 4 24 18 ·5 |
| 23 | 10 29 43 ·68 | N.4 9 38 ·3 | 105 ·33 | 23 | 12 5 50 ·10 | S.4 35 21 ·9 |
| | *SUNDAY* 26. | | | | *TUESDAY* 28. | |
| 0 | 10 31 41 ·09 | N.3 59 6 ·3 | 105 ·62 | 0 | 12 7 54 ·25 | S.4 46 24 ·7 |
| 1 | 10 33 38 ·57 | 3 48 32 ·6 | 105 ·90 | 1 | 12 9 58 ·61 | 4 57 26 ·9 |
| 2 | 10 35 36 ·12 | 3 37 57 ·2 | 106 ·15 | 2 | 12 12 3 ·19 | 5 8 28 ·4 |
| 3 | 10 37 33 ·75 | 3 27 20 ·3 | 106 ·43 | 3 | 12 14 7 ·99 | 5 19 29 ·1 |
| 4 | 10 39 31 ·46 | 3 16 41 ·7 | 106 ·67 | 4 | 12 16 13 ·01 | 5 30 29 ·1 |
| 5 | 10 41 29 ·25 | 3 6 1 ·7 | 106 ·93 | 5 | 12 18 18 ·26 | 5 41 28 ·2 |
| 6 | 10 43 27 ·12 | 2 55 20 ·1 | 107 ·17 | 6 | 12 20 23 ·73 | 5 52 26 ·3 |
| 7 | 10 45 25 ·09 | 2 44 37 ·1 | 107 ·40 | 7 | 12 22 29 ·43 | 6 3 23 ·5 |
| 8 | 10 47 23 ·14 | 2 33 52 ·7 | 107 ·63 | 8 | 12 24 35 ·36 | 6 14 19 ·6 |
| 9 | 10 49 21 ·29 | 2 23 6 ·9 | 107 ·85 | 9 | 12 26 41 ·53 | 6 25 14 ·6 |
| 10 | 10 51 19 ·53 | 2 12 19 ·8 | 108 ·07 | 10 | 12 28 47 ·93 | 6 36 8 ·4 |
| 11 | 10 53 17 ·87 | 2 1 31 ·4 | 108 ·28 | 11 | 12 30 54 ·57 | 6 47 1 ·0 |
| 12 | 10 55 16 ·31 | 1 50 41 ·7 | 108 ·48 | 12 | 12 33 1 ·45 | 6 57 52 ·3 |
| 13 | 10 57 14 ·86 | 1 39 50 ·8 | 108 ·67 | 13 | 12 35 8 ·58 | 7 8 42 ·2 |
| 14 | 10 59 13 ·52 | 1 28 58 ·8 | 108 ·85 | 14 | 12 37 15 ·95 | 7 19 30 ·6 |
| 15 | 11 1 12 ·29 | 1 18 5 ·7 | 109 ·03 | 15 | 12 39 23 ·57 | 7 30 17 ·6 |
| 16 | 11 3 11 ·17 | 1 7 11 ·5 | 109 ·22 | 16 | 12 41 31 ·45 | 7 41 3 ·0 |
| 17 | 11 5 10 ·18 | 0 56 16 ·2 | 109 ·37 | 17 | 12 43 39 ·58 | 7 51 46 ·7 |
| 18 | 11 7 9 ·30 | 0 45 20 ·0 | 109 ·52 | 18 | 12 45 47 ·96 | 8 2 28 ·7 |
| 19 | 11 9 8 ·55 | 0 34 22 ·9 | 109 ·68 | 19 | 12 47 56 ·60 | 8 13 9 ·0 |
| 20 | 11 11 7 ·92 | 0 23 24 ·8 | 109 ·82 | 20 | 12 50 5 ·51 | 8 23 47 ·4 |
| 21 | 11 13 7 ·42 | 0 12 25 ·9 | 109 ·95 | 21 | 12 52 14 ·68 | 8 34 23 ·9 |
| 22 | 11 15 7 ·06 | N.0 1 26 ·2 | 110 ·07 | 22 | 12 54 24 ·11 | 8 44 58 ·4 |
| 23 | 11 17 6 ·84 | S.0 9 34 ·2 | 110 ·20 | 23 | 12 56 33 ·80 | 8 55 30 ·9 |
| 24 | 11 19 6 ·75 | S.0 20 35 ·4 | | 24 | 12 58 43 ·77 | S.9 6 1 ·2 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *WEDNESDAY* 29. | | |
| h m s | ° ′ ″ | ″ |
| 12 58 43 ·77 | S. 9 6 1 ·2 | 104 ·70 |
| 13 0 54 ·01 | 9 16 29 ·4 | 104 ·32 |
| 13 3 4 ·52 | 9 26 55 ·3 | 103 ·92 |
| 13 5 15 ·31 | 9 37 18 ·8 | 103 ·52 |
| 13 7 26 ·37 | 9 47 40 ·0 | 103 ·10 |
| 13 9 37 ·71 | 9 57 58 ·6 | 102 ·70 |
| 13 11 49 ·34 | 10 8 14 ·8 | 102 ·25 |
| 13 14 1 ·24 | 10 18 28 ·3 | 101 ·78 |
| 13 16 13 ·43 | 10 28 39 ·0 | 101 ·35 |
| 13 18 25 ·90 | 10 38 47 ·1 | 100 ·85 |
| 13 20 38 ·66 | 10 48 52 ·2 | 100 ·38 |
| 13 22 51 ·71 | 10 58 54 ·5 | 99 ·87 |
| 13 25 5 ·04 | 11 8 53 ·7 | 99 ·37 |
| 13 27 18 ·67 | 11 18 49 ·9 | 98 ·83 |
| 13 29 32 ·59 | 11 28 42 ·9 | 98 ·30 |
| 13 31 46 ·80 | 11 38 32 ·7 | 97 ·75 |
| 13 34 1 ·30 | 11 48 19 ·2 | 97 ·18 |
| 13 36 16 ·11 | 11 58 2 ·3 | 96 ·60 |
| 13 38 31 ·20 | 12 7 41 ·9 | 96 ·03 |
| 13 40 46 ·60 | 12 17 18 ·1 | 95 ·42 |
| 13 43 2 ·29 | 12 26 50 ·6 | 94 ·80 |
| 13 45 18 ·28 | 12 36 19 ·4 | 94 ·18 |
| 13 47 34 ·57 | 12 45 44 ·5 | 93 ·53 |
| 13 49 51 ·15 | S. 12 55 5 ·7 | 92 ·88 |
| *THURSDAY* 30. | | |
| 13 52 8 ·04 | S. 13 4 23 ·0 | 92 ·22 |
| 13 54 25 ·23 | 13 13 36 ·3 | 91 ·55 |
| 13 56 42 ·72 | 13 22 45 ·6 | 90 ·85 |
| 13 59 0 ·51 | 13 31 50 ·7 | 90 ·13 |
| 14 1 18 ·60 | 13 40 51 ·5 | 89 ·43 |
| 14 3 37 ·00 | 13 49 48 ·1 | 88 ·70 |
| 14 5 55 ·69 | 13 58 40 ·3 | 87 ·95 |
| 14 8 14 ·69 | 14 7 28 ·0 | 87 ·18 |
| 14 10 33 ·99 | 14 16 11 ·1 | 86 ·43 |
| 14 12 53 ·59 | 14 24 49 ·7 | 85 ·63 |
| 14 15 13 ·49 | 14 33 23 ·5 | 84 ·85 |
| 14 17 33 ·69 | 14 41 52 ·6 | 84 ·03 |
| 14 19 54 ·19 | 14 50 16 ·8 | 83 ·22 |
| 14 22 14 ·99 | 14 58 36 ·1 | 82 ·37 |
| 14 24 36 ·08 | 15 6 50 ·3 | 81 ·53 |
| 14 26 57 ·48 | 15 14 59 ·5 | 80 ·67 |
| 14 29 19 ·17 | 15 23 3 ·5 | 79 ·80 |
| 14 31 41 ·15 | 15 31 2 ·3 | 78 ·90 |
| 14 34 3 ·43 | 15 38 55 ·7 | 78 ·02 |
| 14 36 26 ·00 | 15 46 43 ·8 | 77 ·10 |
| 14 38 48 ·85 | 15 54 26 ·4 | 76 ·18 |
| 14 41 12 ·00 | 16 2 3 ·5 | 75 ·23 |
| 14 43 35 ·44 | 16 9 34 ·9 | 74 ·30 |
| 14 45 59 ·16 | 16 17 0 ·7 | 73 ·33 |
| 14 48 23 ·16 | S. 16 24 20 ·7 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 48 23 ·16 | S. 16 24 20 ·7 | 72 ·37 |
| 1 | 14 50 47 ·45 | 16 31 34 ·9 | 71 ·38 |
| 2 | 14 53 12 ·01 | 16 38 43 ·2 | 70 ·38 |
| 3 | 14 55 36 ·86 | 16 45 45 ·5 | 69 ·37 |
| 4 | 14 58 1 ·98 | 16 52 41 ·7 | 68 ·37 |
| 5 | 15 0 27 ·37 | 16 59 31 ·9 | 67 ·32 |
| 6 | 15 2 53 ·04 | 17 6 15 ·8 | 66 ·28 |
| 7 | 15 5 18 ·97 | 17 12 53 ·5 | 65 ·22 |
| 8 | 15 7 45 ·16 | 17 19 24 ·8 | 64 ·17 |
| 9 | 15 10 11 ·62 | 17 25 49 ·8 | 63 ·07 |
| 10 | 15 12 38 ·34 | 17 32 8 ·2 | 62 ·00 |
| 11 | 15 15 5 ·31 | 17 38 20 ·2 | 60 ·88 |
| 12 | 15 17 32 ·54 | 17 44 25 ·5 | 59 ·77 |
| 13 | 15 20 0 ·02 | 17 50 24 ·1 | 58 ·67 |
| 14 | 15 22 27 ·75 | 17 56 16 ·1 | 57 ·52 |
| 15 | 15 24 55 ·72 | 18 2 1 ·2 | 56 ·37 |
| 16 | 15 27 23 ·92 | 18 7 39 ·4 | 55 ·22 |
| 17 | 15 29 52 ·37 | 18 13 10 ·7 | 54 ·07 |
| 18 | 15 32 21 ·05 | 18 18 35 ·1 | 52 ·88 |
| 19 | 15 34 49 ·95 | 18 23 52 ·4 | 51 ·68 |
| 20 | 15 37 19 ·08 | 18 29 2 ·5 | 50 ·52 |
| 21 | 15 39 48 ·43 | 18 34 5 ·6 | 49 ·30 |
| 22 | 15 42 18 ·00 | 18 39 1 ·4 | 48 ·08 |
| 23 | 15 44 47 ·78 | S. 18 43 49 ·9 | 46 ·87 |
| | *SATURDAY, NOV.* 1. | | |
| 0 | 15 47 17 ·76 | S. 18 48 31 ·1 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☽ *First Quarter* - | 7 23 31 ·0 |
| ○ Full Moon - - | 14 21 56 ·3 |
| ☾ *Last Quarter* - | 22 20 14 ·2 |
| ● New Moon - - | 30 11 41 ·9 |

| | d h |
|---|---|
| ☾ Perigee - - - - - - - | 8 5 |
| ☾ Apogee - - - - - - - | 22 2 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 3 | Sun | W. | 25 25 8 | 2798 | 26 59 39 | 2785 | 28 34 26 | 2774 | 30 9 28 |
| | α Aquilæ | E. | 85 20 47 | 2845 | 83 47 18 | 2842 | 82 13 44 | 2837 | 80 40 4 |
| | Saturn | E. | 96 54 39 | 2457 | 95 12 25 | 2449 | 93 30 0 | 2443 | 91 47 26 |
| | Mars | E. | 106 33 45 | 2567 | 104 54 4 | 2558 | 103 14 11 | 2550 | 101 34 7 |
| 4 | Sun | W. | 38 7 39 | 2723 | 39 43 49 | 2714 | 41 20 10 | 2708 | 42 56 39 |
| | α Aquilæ | E. | 72 51 17 | 2835 | 71 17 35 | 2839 | 69 43 58 | 2845 | 68 10 28 |
| | Saturn | E. | 83 12 13 | 2405 | 81 28 45 | 2399 | 79 45 9 | 2395 | 78 1 27 |
| | Mars | E. | 93 11 22 | 2510 | 91 30 23 | 2504 | 89 49 15 | 2499 | 88 8 1 |
| | Fomalhaut | E. | 101 41 14 | 2873 | 100 8 20 | 2862 | 98 35 12 | 2852 | 97 1 51 |
| 5 | Sun | W. | 51 1 8 | 2674 | 52 38 23 | 2669 | 54 15 45 | 2664 | 55 53 13 |
| | Venus | W. | 14 28 2 | 2740 | 16 3 49 | 2735 | 17 39 43 | 2729 | 19 15 44 |
| | Saturn | E. | 69 21 20 | 2370 | 67 37 2 | 2367 | 65 52 40 | 2364 | 64 8 14 |
| | Mars | E. | 79 40 14 | 2475 | 77 58 25 | 2471 | 76 16 31 | 2469 | 74 34 34 |
| | Fomalhaut | E. | 89 12 46 | 2815 | 87 38 37 | 2812 | 86 4 25 | 2811 | 84 30 11 |
| 6 | Sun | W. | 64 1 54 | 2641 | 65 39 53 | 2638 | 67 17 56 | 2635 | 68 56 3 |
| | Venus | W. | 27 17 18 | 2705 | 28 53 52 | 2702 | 30 30 29 | 2699 | 32 7 11 |
| | Saturn | E. | 55 25 15 | 2353 | 53 40 33 | 2352 | 51 55 49 | 2352 | 50 11 5 |
| | Mars | E. | 66 4 2 | 2458 | 64 21 50 | 2458 | 62 39 37 | 2457 | 60 57 23 |
| | Fomalhaut | E. | 76 39 9 | 2821 | 75 5 8 | 2827 | 73 31 15 | 2833 | 71 57 30 |
| | α Pegasi | E. | 93 8 18 | 2471 | 91 26 24 | 2467 | 89 44 25 | 2466 | 88 2 24 |
| 7 | Sun | W. | 77 7 28 | 2621 | 78 45 54 | 2619 | 80 24 23 | 2618 | 82 2 53 |
| | Venus | W. | 40 11 31 | 2684 | 41 48 32 | 2683 | 43 25 35 | 2681 | 45 2 41 |
| | Antares | W. | 24 55 33 | 2447 | 26 38 1 | 2429 | 28 20 54 | 2414 | 30 4 9 |
| | Saturn | E. | 41 27 39 | 2360 | 39 43 6 | 2363 | 37 58 38 | 2366 | 36 14 15 |
| | Mars | E. | 52 26 31 | 2465 | 50 44 28 | 2467 | 49 2 29 | 2470 | 47 20 34 |
| | Fomalhaut | E. | 64 12 5 | 2905 | 62 39 52 | 2924 | 61 8 3 | 2944 | 59 36 40 |
| | α Pegasi | E. | 79 31 45 | 2460 | 77 49 35 | 2460 | 76 7 26 | 2461 | 74 25 18 |
| 8 | Sun | W. | 90 15 55 | 2611 | 91 54 35 | 2610 | 93 33 16 | 2610 | 95 11 58 |
| | Venus | W. | 53 8 34 | 2674 | 54 45 49 | 2674 | 56 23 4 | 2673 | 58 0 20 |
| | Antares | W. | 38 44 18 | 2359 | 40 28 52 | 2353 | 42 13 34 | 2349 | 43 58 22 |
| | Mars | E. | 38 52 57 | 2511 | 37 11 59 | 2522 | 35 31 16 | 2534 | 33 50 50 |
| | α Pegasi | E. | 65 55 27 | 2478 | 64 13 43 | 2484 | 62 32 7 | 2490 | 60 50 39 |
| | Jupiter | E. | 113 9 31 | 2261 | 111 22 34 | 2260 | 109 35 36 | 2260 | 107 48 37 |
| 9 | Sun | W. | 103 25 33 | 2609 | 105 4 16 | 2610 | 106 42 58 | 2610 | 108 21 39 |
| | Venus | W. | 66 6 46 | 2672 | 67 44 3 | 2673 | 69 21 19 | 2674 | 70 58 34 |
| | Antares | W. | 52 43 35 | 2332 | 54 28 48 | 2331 | 56 14 2 | 2330 | 57 59 18 |
| | α Pegasi | E. | 52 26 3 | 2544 | 50 45 51 | 2559 | 49 5 59 | 2573 | 47 26 27 |
| | α Arietis | E. | 95 0 33 | 2344 | 93 15 37 | 2344 | 91 30 41 | 2344 | 89 45 46 |
| | Jupiter | E. | 98 53 34 | 2258 | 97 6 33 | 2259 | 95 19 33 | 2260 | 93 32 34 |
| 10 | Sun | W. | 116 34 42 | 2618 | 118 13 12 | 2620 | 119 51 40 | 2622 | 121 30 5 |
| | Venus | W. | 79 4 27 | 2682 | 80 41 31 | 2684 | 82 18 33 | 2686 | 83 55 32 |
| | Antares | W. | 66 45 45 | 2330 | 68 31 0 | 2331 | 70 16 14 | 2332 | 72 1 27 |
| | α Pegasi | E. | 39 15 47 | 2716 | 37 39 29 | 2753 | 36 4 0 | 2795 | 34 29 26 |
| | α Arietis | E. | 81 1 34 | 2353 | 79 16 51 | 2355 | 77 32 11 | 2358 | 75 47 36 |
| | Jupiter | E. | 84 37 57 | 2266 | 82 51 7 | 2268 | 81 4 20 | 2269 | 79 17 35 |
| 11 | Sun | W. | 129 41 12 | 2641 | 131 19 12 | 2645 | 132 57 6 | 2649 | 134 34 55 |

## MEAN TIME.

### LUNAR DISTANCES.

| tar's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| ɴ | W. | 31 44 42 | 2755 | 33 20 9 | 2746 | 34 55 48 | 2738 | 36 31 38 | 2729 |
| quilæ | E. | 79 6 21 | 2832 | 77 32 35 | 2832 | 75 58 48 | 2832 | 74 25 2 | 2833 |
| urn | E. | 90 4 41 | 2429 | 88 21 47 | 2422 | 86 38 44 | 2417 | 84 55 33 | 2410 |
| rs | E. | 99 53 53 | 2535 | 98 13 29 | 2529 | 96 32 56 | 2522 | 94 52 13 | 2516 |
| ɴ | W. | 44 33 17 | 2696 | 46 10 3 | 2690 | 47 46 57 | 2684 | 49 23 59 | 2678 |
| quilæ | E. | 66 37 6 | 2859 | 65 3 54 | 2868 | 63 30 54 | 2879 | 61 58 8 | 2890 |
| urn | E. | 76 17 38 | 2385 | 74 33 42 | 2381 | 72 49 40 | 2378 | 71 5 33 | 2373 |
| rs | E. | 86 26 40 | 2489 | 84 45 12 | 2485 | 83 3 38 | 2482 | 81 21 59 | 2477 |
| malhaut | E. | 95 28 19 | 2836 | 93 54 38 | 2829 | 92 20 48 | 2823 | 90 46 50 | 2818 |
| ɴ | W. | 57 30 47 | 2656 | 59 8 26 | 2652 | 60 46 11 | 2649 | 62 24 0 | 2645 |
| ıus | W. | 20 51 52 | 2720 | 22 28 5 | 2716 | 24 4 24 | 2711 | 25 40 49 | 2708 |
| urn | E. | 62 23 44 | 2360 | 60 39 11 | 2357 | 58 54 35 | 2355 | 57 9 56 | 2354 |
| rs | E. | 72 52 33 | 2463 | 71 10 28 | 2462 | 69 28 22 | 2460 | 67 46 13 | 2459 |
| malhaut | E. | 82 55 55 | 2810 | 81 21 40 | 2811 | 79 47 26 | 2813 | 78 13 15 | 2817 |
| ɴ | W. | 70 34 13 | 2630 | 72 12 27 | 2627 | 73 50 45 | 2626 | 75 29 5 | 2624 |
| ıus | W. | 33 43 57 | 2693 | 35 20 46 | 2691 | 36 57 38 | 2689 | 38 34 33 | 2687 |
| urn | E. | 48 26 21 | 2353 | 46 41 38 | 2353 | 44 56 56 | 2355 | 43 12 16 | 2357 |
| rs | E. | 59 15 10 | 2458 | 57 32 58 | 2458 | 55 50 46 | 2460 | 54 8 37 | 2463 |
| malhaut | E. | 70 23 57 | 2851 | 68 50 35 | 2862 | 67 17 28 | 2875 | 65 44 37 | 2890 |
| egasi | E. | 86 20 19 | 2462 | 84 38 13 | 2460 | 82 56 4 | 2460 | 81 13 55 | 2460 |
| ɴ | W. | 83 41 26 | 2615 | 85 20 1 | 2614 | 86 58 37 | 2613 | 88 37 15 | 2611 |
| ıus | W. | 46 39 48 | 2678 | 48 16 57 | 2677 | 49 54 8 | 2676 | 51 31 20 | 2675 |
| tares | W. | 31 47 44 | 2390 | 33 31 33 | 2380 | 35 15 37 | 2372 | 36 59 52 | 2364 |
| urn | E. | 34 30 0 | 2378 | 32 45 54 | 2387 | 31 2 0 | 2396 | 29 18 19 | 2408 |
| rs | E. | 45 38 46 | 2480 | 43 57 5 | 2486 | 42 15 32 | 2493 | 40 34 9 | 2501 |
| malhaut | E. | 58 5 45 | 2991 | 56 35 21 | 3019 | 55 5 32 | 3051 | 53 36 22 | 3085 |
| egasi | E. | 72 43 13 | 2465 | 71 1 10 | 2467 | 69 19 11 | 2470 | 67 37 16 | 2474 |
| ɴ | W. | 96 50 41 | 2609 | 98 29 24 | 2609 | 100 8 7 | 2609 | 101 46 50 | 2609 |
| ıus | W. | 59 37 37 | 2672 | 61 14 54 | 2672 | 62 52 12 | 2672 | 64 29 29 | 2672 |
| tares | W. | 45 43 16 | 2342 | 47 28 15 | 2339 | 49 13 18 | 2336 | 50 58 25 | 2334 |
| rs | E. | 32 10 46 | 2567 | 30 31 6 | 2588 | 28 51 55 | 2614 | 27 13 19 | 2644 |
| egasi | E. | 59 9 20 | 2503 | 57 28 11 | 2512 | 55 47 15 | 2521 | 54 6 31 | 2533 |
| piter | E. | 106 1 37 | 2258 | 104 14 36 | 2258 | 102 27 35 | 2258 | 100 40 35 | 2258 |
| ɴ | W. | 110 0 19 | 2613 | 111 38 57 | 2613 | 113 17 34 | 2615 | 114 56 9 | 2616 |
| ıus | W. | 72 35 48 | 2676 | 74 13 0 | 2677 | 75 50 11 | 2678 | 77 27 20 | 2680 |
| tares | W. | 59 44 35 | 2329 | 61 29 53 | 2329 | 63 15 10 | 2329 | 65 0 28 | 2329 |
| egasi | E. | 45 47 19 | 2610 | 44 8 37 | 2632 | 42 30 25 | 2657 | 40 52 47 | 2685 |
| rietis | E. | 88 0 52 | 2346 | 86 15 59 | 2347 | 84 31 8 | 2349 | 82 46 20 | 2351 |
| piter | E. | 91 45 35 | 2261 | 89 58 38 | 2262 | 88 11 42 | 2263 | 86 24 48 | 2265 |
| ɴ | W. | 123 8 26 | 2628 | 124 46 43 | 2630 | 126 24 57 | 2633 | 128 3 7 | 2637 |
| ıus | W. | 85 32 28 | 2690 | 87 9 21 | 2694 | 88 46 9 | 2697 | 90 22 53 | 2700 |
| tares | W. | 73 46 37 | 2336 | 75 31 44 | 2337 | 77 16 49 | 2340 | 79 1 50 | 2343 |
| egasi | E. | 32 55 56 | 2901 | 31 23 38 | 2966 | 29 52 43 | 3043 | 28 23 24 | 3136 |
| rietis | E. | 74 3 5 | 2364 | 72 18 38 | 2368 | 70 34 17 | 2372 | 68 50 2 | 2376 |
| piter | E. | 77 30 54 | 2274 | 75 44 16 | 2277 | 73 57 42 | 2279 | 72 11 11 | 2283 |
| ɴ | W. | 136 12 38 | 2658 | 137 50 14 | 2663 | 139 27 43 | 2669 | 141 5 5 | 2675 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 11 | Venus | W. | 91 59 33 | 2703 | 93 36 9 | 2708 | 95 12 38 | 2711 | 96 49 |
| | Antares | W. | 80 46 47 | 2346 | 82 31 40 | 2349 | 84 16 28 | 2352 | 86 1 |
| | α Arietis | E. | 67 5 53 | 2382 | 65 21 52 | 2386 | 63 37 57 | 2392 | 61 54 |
| | Jupiter | E. | 70 24 46 | 2285 | 68 38 24 | 2289 | 66 52 8 | 2293 | 65 5 |
| | Aldebaran | E. | 100 8 39 | 2327 | 98 23 19 | 2331 | 96 38 4 | 2334 | 94 52 |
| 12 | Venus | W. | 104 49 30 | 2742 | 106 25 14 | 2748 | 108 0 50 | 2755 | 109 36 |
| | α Aquilæ | W. | 46 58 52 | 3158 | 48 25 51 | 3121 | 49 53 35 | 3088 | 51 21 |
| | Saturn | W. | 30 12 9 | 2451 | 31 54 31 | 2447 | 33 36 59 | 2445 | 35 19 |
| | α Arietis | E. | 53 17 47 | 2436 | 51 35 4 | 2447 | 49 52 36 | 2457 | 48 10 |
| | Jupiter | E. | 56 16 38 | 2320 | 54 31 8 | 2325 | 52 45 45 | 2332 | 51 0 |
| | Aldebaran | E. | 86 8 36 | 2361 | 84 24 5 | 2366 | 82 39 42 | 2373 | 80 55 |
| 13 | α Aquilæ | W. | 58 51 23 | 2965 | 60 22 20 | 2954 | 61 53 31 | 2944 | 63 24 |
| | Saturn | W. | 43 51 47 | 2455 | 45 34 3 | 2460 | 47 16 12 | 2465 | 48 58 |
| | Mars | W. | 31 57 58 | 2679 | 33 35 6 | 2672 | 35 12 23 | 2668 | 36 49 |
| | α Arietis | E. | 39 43 37 | 2540 | 38 3 19 | 2558 | 36 23 27 | 2579 | 34 44 |
| | Jupiter | E. | 42 16 46 | 2373 | 40 32 33 | 2381 | 38 48 31 | 2389 | 37 4 |
| | Aldebaran | E. | 72 16 36 | 2413 | 70 33 20 | 2421 | 68 50 15 | 2429 | 67 7 |
| 14 | α Aquilæ | W. | 71 3 26 | 2924 | 72 35 15 | 2924 | 74 7 3 | 2927 | 75 38 |
| | Saturn | W. | 57 26 5 | 2507 | 59 7 8 | 2516 | 60 47 59 | 2525 | 62 28 |
| | Mars | W. | 44 56 52 | 2674 | 46 34 7 | 2678 | 48 11 16 | 2685 | 49 48 |
| | Fomalhaut | W. | 44 21 22 | 3540 | 45 41 2 | 3489 | 47 1 38 | 3445 | 48 23 |
| | Jupiter | E. | 28 28 53 | 2449 | 26 46 28 | 2460 | 25 4 19 | 2473 | 23 22 |
| | Aldebaran | E. | 58 36 4 | 2484 | 56 54 28 | 2495 | 55 13 7 | 2505 | 53 32 |
| 15 | α Aquilæ | W. | 83 15 51 | 2964 | 84 46 49 | 2973 | 86 17 36 | 2984 | 87 48 |
| | Saturn | W. | 70 48 27 | 2585 | 72 27 42 | 2596 | 74 6 42 | 2607 | 75 45 |
| | Mars | W. | 57 50 52 | 2732 | 59 26 49 | 2742 | 61 2 33 | 2753 | 62 38 |
| | Fomalhaut | W. | 55 19 28 | 3278 | 56 44 5 | 3262 | 58 9 1 | 3250 | 59 34 |
| | Aldebaran | E. | 45 10 21 | 2574 | 43 30 51 | 2586 | 41 51 37 | 2599 | 40 12 |
| | Pollux | E. | 87 48 27 | 2643 | 86 10 30 | 2655 | 84 32 50 | 2667 | 82 55 |
| 16 | Saturn | W. | 83 55 13 | 2679 | 85 32 21 | 2692 | 87 9 12 | 2704 | 88 45 |
| | Mars | W. | 70 32 1 | 2819 | 72 6 4 | 2832 | 73 39 50 | 2844 | 75 13 |
| | Fomalhaut | W. | 66 42 25 | 3215 | 68 8 16 | 3214 | 69 34 9 | 3216 | 70 59 |
| | α Pegasi | W. | 47 37 40 | 2933 | 49 9 17 | 2931 | 50 40 56 | 2932 | 52 12 |
| | Aldebaran | E. | 32 2 40 | 2684 | 30 25 39 | 2699 | 28 48 58 | 2716 | 27 12 |
| | Pollux | E. | 74 52 43 | 2746 | 73 17 4 | 2760 | 71 41 44 | 2775 | 70 6 |
| 17 | Saturn | W. | 96 44 27 | 2782 | 98 19 19 | 2794 | 99 53 55 | 2806 | 101 28 |
| | Mars | W. | 82 56 53 | 2920 | 84 28 47 | 2933 | 86 0 24 | 2946 | 87 31 |
| | Fomalhaut | W. | 78 8 9 | 3244 | 79 33 26 | 3252 | 80 58 34 | 3259 | 82 23 |
| | α Pegasi | W. | 59 49 48 | 2956 | 61 20 56 | 2962 | 62 51 56 | 2970 | 64 22 |
| | Pollux | E. | 62 16 29 | 2866 | 60 43 27 | 2883 | 59 10 46 | 2898 | 57 38 |
| | Regulus | E. | 98 38 8 | 2775 | 97 3 7 | 2787 | 95 28 22 | 2800 | 93 53 |
| 18 | Saturn | W. | 109 15 41 | 2883 | 110 48 22 | 2896 | 112 20 46 | 2908 | 113 52 |
| | Mars | W. | 95 4 26 | 3023 | 96 34 10 | 3035 | 98 3 39 | 3048 | 99 32 |
| | α Pegasi | W. | 71 54 32 | 3020 | 73 24 20 | 3028 | 74 53 58 | 3038 | 76 23 |
| | α Arietis | W. | 28 20 7 | 3084 | 29 48 36 | 3076 | 31 17 15 | 3069 | 32 46 |
| | *Jupiter* | W. | 24 23 5 | 2826 | 25 56 59 | 2836 | 27 30 40 | 2845 | 29 4 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 11 | Venus | W. | 98 25 21 | 2720 | 100 1 34 | 2725 | 101 37 40 | 2731 | 103 13 39 | 2737 |
| | Antares | W. | 87 45 49 | 2360 | 89 30 21 | 2365 | 91 14 46 | 2369 | 92 59 5 | 2375 |
| | α Arietis | E. | 60 10 34 | 2405 | 58 27 6 | 2412 | 56 43 48 | 2420 | 55 0 42 | 2428 |
| | Jupiter | E. | 63 19 53 | 2300 | 61 33 54 | 2305 | 59 48 2 | 2309 | 58 2 16 | 2315 |
| | Aldebaran | E. | 93 7 50 | 2342 | 91 22 51 | 2346 | 89 37 59 | 2351 | 87 53 14 | 2356 |
| 12 | Venus | W. | 111 11 35 | 2769 | 112 46 44 | 2776 | 114 21 44 | 2784 | 115 56 33 | 2792 |
| | α Aquilæ | W. | 52 50 58 | 3035 | 54 20 28 | 3014 | 55 50 24 | 2994 | 57 20 44 | 2979 |
| | Saturn | W. | 37 2 1 | 2445 | 38 44 32 | 2446 | 40 27 1 | 2449 | 42 9 26 | 2452 |
| | α Arietis | E. | 46 28 24 | 2480 | 44 46 43 | 2494 | 43 5 21 | 2507 | 41 24 18 | 2523 |
| | Jupiter | E. | 49 15 27 | 2344 | 47 30 31 | 2351 | 45 45 46 | 2358 | 44 1 11 | 2365 |
| | Aldebaran | E. | 79 11 23 | 2385 | 77 27 26 | 2391 | 75 43 39 | 2398 | 74 0 2 | 2406 |
| 13 | α Aquilæ | W. | 64 56 26 | 2931 | 66 28 6 | 2927 | 67 59 50 | 2924 | 69 31 38 | 2924 |
| | Saturn | W. | 50 40 7 | 2477 | 52 21 52 | 2485 | 54 3 27 | 2492 | 55 44 51 | 2499 |
| | Mars | W. | 38 27 13 | 2665 | 40 4 40 | 2665 | 41 42 7 | 2666 | 43 19 32 | 2670 |
| | α Arietis | E. | 33 5 11 | 2627 | 31 26 52 | 2655 | 29 49 12 | 2688 | 28 12 16 | 2724 |
| | Jupiter | E. | 35 21 4 | 2408 | 33 37 40 | 2417 | 31 54 30 | 2427 | 30 11 34 | 2438 |
| | Aldebaran | E. | 65 24 41 | 2446 | 63 42 12 | 2455 | 61 59 56 | 2465 | 60 17 53 | 2475 |
| 14 | α Aquilæ | W. | 77 10 26 | 2936 | 78 41 59 | 2942 | 80 13 25 | 2948 | 81 44 43 | 2956 |
| | Saturn | W. | 64 9 2 | 2544 | 65 49 14 | 2553 | 67 29 13 | 2564 | 69 8 57 | 2575 |
| | Mars | W. | 51 25 8 | 2699 | 53 1 50 | 2706 | 54 38 22 | 2714 | 56 14 43 | 2723 |
| | Fomalhaut | W. | 49 45 13 | 3372 | 51 8 1 | 3344 | 52 31 22 | 3319 | 53 55 12 | 3296 |
| | Jupiter | E. | 21 40 55 | 2500 | 19 59 42 | 2515 | 18 18 50 | 2532 | 16 38 22 | 2552 |
| | Aldebaran | E. | 51 51 9 | 2527 | 50 10 33 | 2538 | 48 30 13 | 2550 | 46 50 9 | 2561 |
| 15 | α Aquilæ | W. | 89 18 29 | 3006 | 90 48 34 | 3018 | 92 18 24 | 3031 | 93 47 58 | 3045 |
| | Saturn | W. | 77 23 56 | 2630 | 79 2 10 | 2643 | 80 40 7 | 2655 | 82 17 48 | 2666 |
| | Mars | W. | 64 13 20 | 2773 | 65 48 23 | 2785 | 67 23 10 | 2796 | 68 57 43 | 2808 |
| | Fomalhaut | W. | 60 59 34 | 3230 | 62 25 8 | 3225 | 63 50 48 | 3219 | 65 16 35 | 3216 |
| | Aldebaran | E. | 38 34 3 | 2627 | 36 55 44 | 2640 | 35 17 43 | 2655 | 33 40 2 | 2669 |
| | Pollux | E. | 81 18 19 | 2692 | 79 41 28 | 2705 | 78 4 55 | 2719 | 76 28 40 | 2732 |
| 16 | Saturn | W. | 90 22 5 | 2729 | 91 58 6 | 2742 | 93 33 50 | 2755 | 95 9 17 | 2768 |
| | Mars | W. | 76 46 36 | 2869 | 78 19 35 | 2882 | 79 52 17 | 2894 | 81 24 43 | 2907 |
| | Fomalhaut | W. | 72 25 47 | 3221 | 73 51 31 | 3226 | 75 17 10 | 3231 | 76 42 43 | 3237 |
| | α Pegasi | W. | 53 44 10 | 2936 | 55 15 43 | 2940 | 56 47 11 | 2945 | 58 18 33 | 2950 |
| | Aldebaran | E. | 25 36 44 | 2751 | 24 1 12 | 2770 | 22 26 5 | 2792 | 20 51 26 | 2813 |
| | Pollux | E. | 68 32 1 | 2804 | 66 57 38 | 2819 | 65 23 35 | 2835 | 63 49 52 | 2850 |
| 17 | Saturn | W. | 103 2 17 | 2832 | 104 36 3 | 2845 | 106 9 32 | 2858 | 107 42 45 | 2871 |
| | Mars | W. | 89 2 49 | 2972 | 90 33 37 | 2985 | 92 4 9 | 2998 | 93 34 25 | 3010 |
| | Fomalhaut | W. | 83 48 21 | 3279 | 85 12 57 | 3288 | 86 37 22 | 3299 | 88 1 35 | 3311 |
| | α Pegasi | W. | 65 53 28 | 2985 | 67 24 0 | 2993 | 68 54 21 | 3002 | 70 24 32 | 3010 |
| | Pollux | E. | 56 6 27 | 2932 | 54 34 49 | 2950 | 53 3 34 | 2968 | 51 32 41 | 2987 |
| | Regulus | E. | 92 19 41 | 2825 | 90 45 45 | 2837 | 89 12 5 | 2849 | 87 38 41 | 2861 |
| 18 | Saturn | W. | 115 24 48 | 2932 | 116 56 26 | 2945 | 118 27 48 | 2956 | 119 58 56 | 2968 |
| | Mars | W. | 101 1 51 | 3073 | 102 30 34 | 3084 | 103 59 3 | 3096 | 105 27 17 | 3108 |
| | α Pegasi | W. | 77 52 39 | 3056 | 79 21 42 | 3065 | 80 50 34 | 3075 | 82 19 14 | 3084 |
| | α Arietis | W. | 34 14 55 | 3062 | 35 43 51 | 3061 | 37 12 48 | 3062 | 38 41 44 | 3064 |
| | Jupiter | W. | 30 37 25 | 2865 | 32 10 29 | 2875 | 33 43 20 | 2885 | 35 15 58 | 2894 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III h. | P. L. of diff. | VI h. | P. L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 18 | Pollux | E. | 50 2 12 | 3005 | 48 32 5 | 3025 | 47 2 23 | 3044 | 45 33 5 |
| | Regulus | E. | 86 5 32 | 2873 | 84 32 38 | 2885 | 83 0 0 | 2897 | 81 27 37 |
| 19 | Mars | W. | 106 55 17 | 3119 | 108 23 3 | 3130 | 109 50 36 | 3142 | 111 17 55 |
| | α Arietis | W. | 40 10 38 | 3065 | 41 39 31 | 3068 | 43 8 20 | 3071 | 44 37 5 |
| | Jupiter | W. | 36 48 25 | 2904 | 38 20 39 | 2913 | 39 52 42 | 2921 | 41 24 34 |
| | Pollux | E. | 38 13 16 | 3183 | 36 46 46 | 3211 | 35 20 50 | 3240 | 33 55 28 |
| | Regulus | E. | 73 49 17 | 2963 | 72 18 18 | 2973 | 70 47 31 | 2984 | 69 16 58 |
| | Sun | E. | 132 1 25 | 3313 | 130 37 29 | 3324 | 129 13 45 | 3334 | 127 50 13 |
| 20 | α Arietis | W. | 51 59 42 | 3095 | 53 27 58 | 3098 | 54 56 10 | 3102 | 56 24 17 |
| | Jupiter | W. | 49 1 14 | 2969 | 50 32 6 | 2977 | 52 2 48 | 2982 | 53 33 23 |
| | Aldebaran | W. | 18 24 44 | 3091 | 19 53 5 | 3087 | 21 21 31 | 3085 | 22 49 59 |
| | Regulus | E. | 61 47 7 | 3038 | 60 17 41 | 3046 | 58 48 25 | 3054 | 57 19 19 |
| | Sun | E. | 120 55 17 | 3389 | 119 32 48 | 3396 | 118 10 27 | 3404 | 116 48 13 |
| 21 | α Arietis | W. | 63 43 49 | 3121 | 65 11 33 | 3124 | 66 39 14 | 3126 | 68 6 52 |
| | Jupiter | W. | 61 4 33 | 3013 | 62 34 30 | 3017 | 64 4 22 | 3020 | 65 34 10 |
| | Aldebaran | W. | 30 12 15 | 3089 | 31 40 38 | 3090 | 33 9 0 | 3091 | 34 37 21 |
| | Regulus | E. | 49 55 55 | 3094 | 48 27 38 | 3098 | 46 59 26 | 3104 | 45 31 29 |
| | Sun | E. | 109 58 59 | 3439 | 108 37 26 | 3442 | 107 15 57 | 3446 | 105 54 35 |
| 22 | α Arietis | W. | 75 24 45 | 3129 | 76 52 19 | 3129 | 78 19 54 | 3128 | 79 47 29 |
| | Jupiter | W. | 73 2 33 | 3029 | 74 32 10 | 3029 | 76 1 47 | 3029 | 77 31 24 |
| | Aldebaran | W. | 41 58 54 | 3092 | 43 27 13 | 3092 | 44 55 33 | 3090 | 46 23 53 |
| | Regulus | E. | 38 12 24 | 3131 | 36 44 52 | 3135 | 35 17 25 | 3139 | 33 50 [illegible] |
| | Sun | E. | 99 8 8 | 3457 | 97 46 56 | 3456 | 96 25 43 | 3456 | 95 4 30 |
| 23 | α Arietis | W. | 87 6 6 | 3112 | 88 34 1 | 3109 | 90 2 0 | 3105 | 91 30 [illegible] |
| | Jupiter | W. | 85 0 3 | 3014 | 86 29 58 | 3011 | 87 59 57 | 3006 | 89 30 [illegible] |
| | Aldebaran | W. | 53 46 29 | 3073 | 55 15 12 | 3069 | 56 44 0 | 3063 | 58 12 53 |
| | Regulus | E. | 26 34 39 | 3173 | 25 7 58 | 3182 | 23 41 27 | 3194 | 22 15 10 |
| | Sun | E. | 88 17 53 | 3440 | 86 56 22 | 3437 | 85 34 47 | 3432 | 84 13 [illegible] |
| 24 | α Arietis | W. | 98 52 7 | 3069 | 100 20 55 | 3062 | 101 49 51 | 3054 | 103 18 57 |
| | Jupiter | W. | 97 2 9 | 2970 | 98 32 59 | 2962 | 100 3 59 | 2954 | 101 35 [illegible] |
| | Aldebaran | W. | 65 39 16 | 3025 | 67 8 58 | 3017 | 68 38 50 | 3009 | 70 8 52 |
| | Pollux | W. | 25 27 26 | 3506 | 26 47 44 | 3448 | 28 9 6 | 3400 | 29 31 23 |
| | Sun | E. | 77 23 2 | 3392 | 76 0 36 | 3384 | 74 38 1 | 3374 | 73 15 15 |
| 25 | Jupiter | W. | 109 13 50 | 2898 | 110 46 12 | 2886 | 112 18 49 | 2876 | 113 51 39 |
| | Aldebaran | W. | 77 41 59 | 2950 | 79 13 15 | 2939 | 80 44 45 | 2927 | 82 16 30 |
| | Pollux | W. | 36 34 6 | 3187 | 38 0 31 | 3158 | 39 27 30 | 3134 | 40 54 59 |
| | Sun | E. | 66 18 35 | 3312 | 64 54 37 | 3300 | 63 30 25 | 3287 | 62 5 58 |
| 26 | Aldebaran | W. | 89 59 7 | 2852 | 91 32 28 | 2838 | 93 6 7 | 2824 | 94 40 4 |
| | Pollux | W. | 48 19 36 | 2998 | 49 49 52 | 2977 | 51 20 34 | 2957 | 52 51 41 |
| | Regulus | W. | 11 42 7 | 3354 | 13 5 16 | 3233 | 14 30 46 | 3142 | 15 58 5 |
| | Sun | E. | 54 59 51 | 3205 | 53 33 48 | 3191 | 52 7 28 | 3175 | 50 40 49 |
| 27 | Pollux | W. | 60 33 26 | 2842 | 62 7 0 | 2824 | 63 40 57 | 2805 | 65 15 18 |
| | Regulus | W. | 23 32 5 | 2856 | 25 5 21 | 2826 | 26 39 15 | 2798 | 28 13 43 |
| | Sun | E. | 43 22 56 | 3081 | 41 54 23 | 3065 | 40 25 31 | 3048 | 38 56 11 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| llux | E. | 44 4 13 | 3087 | 42 35 47 | 3108 | 41 7 47 | 3133 | 39 40 17 | 3157 |
| gulus | E. | 79 55 29 | 2920 | 78 23 35 | 2931 | 76 51 55 | 2942 | 75 20 29 | 2953 |
| rs | W. | 112 45 2 | 3163 | 114 11 55 | 3173 | 115 38 37 | 3183 | 117 5 6 | 3193 |
| rietis | W. | 46 5 46 | 3078 | 47 34 22 | 3082 | 49 2 53 | 3086 | 50 31 20 | 3090 |
| piter | W. | 42 56 14 | 2939 | 44 27 44 | 2946 | 45 59 4 | 2954 | 47 30 14 | 2962 |
| llux | E. | 32 30 45 | 3308 | 31 6 43 | 3347 | 29 43 26 | 3390 | 28 20 58 | 3439 |
| gulus | E. | 67 46 37 | 3003 | 66 16 28 | 3012 | 64 46 30 | 3021 | 63 16 43 | 3030 |
| N | E. | 126 26 53 | 3353 | 125 3 43 | 3364 | 123 40 45 | 3372 | 122 17 56 | 3380 |
| rietis | W. | 57 52 19 | 3109 | 59 20 18 | 3113 | 60 48 12 | 3116 | 62 16 2 | 3119 |
| piter | W. | 55 3 50 | 2994 | 56 34 10 | 2999 | 58 4 24 | 3005 | 59 34 31 | 3009 |
| lebaran | W. | 24 18 27 | 3084 | 25 46 56 | 3086 | 27 15 23 | 3086 | 28 43 50 | 3087 |
| gulus | E. | 55 50 22 | 3068 | 54 21 33 | 3075 | 52 52 53 | 3081 | 51 24 20 | 3087 |
| N | E. | 115 26 10 | 3417 | 114 4 13 | 3423 | 112 42 22 | 3429 | 111 20 38 | 3433 |
| rietis | W. | 69 34 29 | 3128 | 71 2 4 | 3129 | 72 29 38 | 3129 | 73 57 12 | 3130 |
| piter | W. | 67 3 55 | 3024 | 68 33 38 | 3027 | 70 3 17 | 3027 | 71 32 56 | 3029 |
| lebaran | W. | 36 5 40 | 3092 | 37 33 59 | 3093 | 39 2 17 | 3093 | 40 30 35 | 3092 |
| gulus | E. | 44 3 23 | 3114 | 42 35 30 | 3119 | 41 7 43 | 3123 | 39 40 1 | 3127 |
| N | E. | 104 33 11 | 3451 | 103 11 52 | 3454 | 101 50 36 | 3455 | 100 29 22 | 3455 |
| rietis | W. | 81 15 7 | 3124 | 82 42 47 | 3122 | 84 10 30 | 3119 | 85 38 16 | 3116 |
| piter | W. | 79 1 3 | 3026 | 80 30 44 | 3024 | 82 0 27 | 3022 | 83 30 13 | 3018 |
| lebaran | W. | 47 52 20 | 3085 | 49 20 47 | 3083 | 50 49 17 | 3080 | 52 17 51 | 3077 |
| gulus | E. | 32 22 46 | 3148 | 30 55 34 | 3153 | 29 28 29 | 3158 | 28 1 30 | 3165 |
| N | E. | 93 43 15 | 3454 | 92 21 59 | 3451 | 91 0 40 | 3449 | 89 39 19 | 3445 |
| rietis | W. | 92 58 15 | 3094 | 94 26 32 | 3088 | 95 54 56 | 3082 | 97 23 28 | 3076 |
| piter | W. | 91 0 13 | 2996 | 92 30 31 | 2990 | 94 0 56 | 2985 | 95 31 28 | 2978 |
| lebaran | W. | 59 41 56 | 3052 | 61 11 4 | 3046 | 62 40 20 | 3039 | 64 9 44 | 3033 |
| gulus | E. | 20 49 10 | 3225 | 19 23 31 | 3249 | 17 58 20 | 3281 | 16 33 46 | 3322 |
| N | E. | 82 51 20 | 3421 | 81 29 27 | 3415 | 80 7 27 | 3408 | 78 45 19 | 3400 |
| rietis | W. | 104 48 13 | 3038 | 106 17 38 | 3029 | 107 47 15 | 3021 | 109 17 2 | 3011 |
| piter | W. | 103 6 30 | 2937 | 104 38 2 | 2928 | 106 9 45 | 2918 | 107 41 41 | 2908 |
| lebaran | W. | 71 39 5 | 2990 | 73 9 30 | 2981 | 74 40 7 | 2971 | 76 10 56 | 2960 |
| llux | W. | 30 54 30 | 3315 | 32 18 24 | 3280 | 33 42 59 | 3246 | 35 8 14 | 3215 |
| N | E. | 71 52 19 | 3355 | 70 29 11 | 3345 | 69 5 52 | 3334 | 67 42 20 | 3323 |
| piter | W. | 115 24 44 | 2852 | 116 58 5 | 2840 | 118 31 41 | 2828 | 120 5 33 | 2814 |
| lebaran | W. | 83 48 29 | 2903 | 85 20 44 | 2891 | 86 53 15 | 2878 | 88 26 2 | 2864 |
| llux | W. | 42 22 59 | 3085 | 43 51 27 | 3062 | 45 20 23 | 3040 | 46 49 46 | 3018 |
| N | E. | 60 41 16 | 3261 | 59 16 19 | 3248 | 57 51 7 | 3233 | 56 25 37 | 3220 |
| lebaran | W. | 96 14 19 | 2796 | 97 48 52 | 2781 | 99 23 45 | 2767 | 100 58 56 | 2752 |
| llux | W. | 54 23 13 | 2917 | 55 55 10 | 2898 | 57 27 31 | 2879 | 59 0 17 | 2861 |
| gulus | W. | 17 26 49 | 3013 | 18 56 46 | 2965 | 20 27 42 | 2924 | 21 59 31 | 2888 |
| N | E. | 49 13 52 | 3145 | 47 46 37 | 3129 | 46 19 2 | 3114 | 44 51 9 | 3097 |
| llux | W. | 66 50 2 | 2769 | 68 25 10 | 2752 | 70 0 41 | 2735 | 71 36 35 | 2717 |
| gulus | W. | 29 48 47 | 2750 | 31 24 20 | 2727 | 33 0 24 | 2705 | 34 36 57 | 2685 |
| N | E. | 37 26 45 | 3016 | 35 56 52 | 2999 | 34 26 38 | 2983 | 32 56 4 | 2966 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITEI

### At 12h, Mean Time.

| Day of the Month. | West. | | | | | | | | | | | | | | | | | | East. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ·3● | | | | | | | | | | ·2 | | ·1 | | | | | | | | | | | | | | | | 4· | |
| 2 | | | | | | | | | | | | | | | | | | | ○ | ·2 | | 1· | | | ·3 | | | 4· | | |
| 3 | | | | | | | | | | | | | | | ·1 | | | | ○ | | | | 2·4· | | | 3· | | | | |
| 4 | | | | | | | | | | | | | 2· | | | 4· | | | ○ | 1· | | | 3· | | | | | | | |
| 5 | | | | | | | | | | 4· | | | ·2 3· | | | | | | ○ | | | | | | | | | | | |
| 6 | | | | | | 4· | | | 3· | | | | | | 1· | | | | ○ | | | | ·2 | | | | | | | |
| 7 | | | 4· | | | | | | ·3 | | | | | | | | | | ○ | 2· | ·1 | | | | | | | | | |
| 8 | | ·4 | | | | | | | | | 2· | | 1· | | | ·3 | | | ○ | | | | | | | | | | | |
| 9 | | | ·4 | | | | | | | | | | | | | | | | ○ | | | 1· | | | ·3 | | | | | |
| 10 | | | | | | ·4 | | | | | | | | | ·1 | | | | ○ | | | | | 2· | | | 3. | | | |
| 11 | | | | | | | | | | ·4 | | | | | 2· | | | | ○ | 1· | | | 3· | | | | | | | |
| 12 | | | | | | | | | | | | | ·2 | | 3· | ·4 | | | ○ | | | | | | | | | | | |
| 13 | | | | | | | | | 3· | | | | | | | 1· | | | ○ | | | | ·2 ·4 | | | | | | | |
| 14 | | | | | | | | | ·3 | | | | | | | | | | ○ | | ·2 ·1 | | | | | | | ·4 | | |
| 15 | | | | | | | | | | | 2· | | 1· | | ·3 | | | | ○ | | | | | | | | | | ·4 | |
| 16 | | | | | | | | | | | | | | | | ·2 | | | ○ | | | 1. | | | ·3 | | | | | ·4 |
| 17 | | | | | | | | | | | | | | ·1 | | | | | ○ | | | | | 2. | | | 3. | | | 4· |
| 18 | | | | | | | | | | | | | | | | 2· | | | ○ | | 1· | | | | 3· | | | | 4· | |
| 19 | | | | | | | | | | | | ·2 | | | | 3· ·1 | | | ○ | | | | | | | | 4· | | | |
| 20 | | | | | | | | | 3· | | | | | | | | | | ○ | | | 4· ·2 | | | | | | | | |
| 21 | | | | | | | | | ·3 | | | | | | 4· | | | | ○ | ·1 | | 2· | | | | | | | | |
| 22 | | | | | | | | | 4· | | | 2· | | | 1· ·3 | | | | ○ | | | | | | | | | | | |
| 23 | | | | 4· | | | | | | | | | | | | ·2 | | | ○ | | | ·1 | ·3 | | | | | | | |
| 24 | | | 4· | | | | | | | | | | | ·1 | | | | | ○ | | | | | 2. | | | ·3 | | | |
| 25 | | ·4 | | | | | | | | | | | | | | 2· | | | ○ | | | 1· | | | 3· | | | | | |
| 26 | | | | ·4 | | | | | | | | ·2 | | | ·1 | | | | ○ | | | | | | | | | | | |
| 27 | | | | | | | ·4 | | 3· | | | | | | | | | | ○ | 1· | | ·2 | | | | | | | | |
| 28 | | | | | | | | ·3 | | | | ·4 | | | | | | | ○ | | | | 2· | | | | | | | |
| 29 | | | | | | | | | | | | 2· ·3 | | | 1· | | | | ○ | ·4 | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | ·2 | | | | ○ | | | ·1 ·3 | | | ·4 | | | | | |
| 31 | | | | | | | | | | | | | | 1· | | | | | ○ | | | | | ·2 | | ·3 | | ·4 | | |

This Table represents, at 12h after *Mean Noon* of each day of the month, the relative pos of the images of Jupiter and his Satellites, as they would appear (disregarding their latitud an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distin the Satellites from each other; and their positions are such as to indicate the directions of the lites' motions, which are in all cases to be considered as *towards the numerals*. When a Satel at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shad Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| SATELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 20 51 33·1 | 9 35 17·0 | Im. |
| | 3* | 15 20 5·9 | 4 10 48·5 | Im. |
| | 5* | 9 48 45·0 | 22 46 26·2 | Im. |
| | 7 | 4 17 19·5 | 17 21 59·4 | Im. |
| | 8 | 22 45 57·7 | 11 57 36·3 | Im. |
| | 10* | 17 14 32·7 | 6 33 9·9 | Im. |
| | 12* | 11 43 14·1 | 1 8 49·9 | Im. |
| | 14† | 6 11 50·7 | 19 44 25·3 | Im. |
| | 16 | 0 40 31·4 | 14 20 4·6 | Im. |
| | 17 | 19 9 8·2 | 8 55 40·1 | Im. |
| | 19* | 13 37 52·1 | 3 31 22·6 | Im. |
| | 21* | 8 6 30·9 | 22 7 0·2 | Im. |
| | 23 | 2 35 14·3 | 16 42 42·2 | Im. |
| | 24 | 21 3 53·2 | 11 18 19·8 | Im. |
| | 26* | 15 32 39·3 | 5 54 4·6 | Im. |
| | 30* | 6 37 49·8 | 21 13 33·5 | Em. |
| II. | 2† | 7 10 20·7 | 19 55 46·2 | Im. |
| | 5 | 20 28 42·5 | 9 28 8·9 | Im. |
| | 9* | 9 46 39·2 | 23 0 6·3 | Im. |
| | 12 | 23 4 57·1 | 12 32 25·0 | Im. |
| | 16* | 12 22 54·4 | 2 4 23·0 | Im. |
| | 20 | 1 41 8·8 | 15 36 38·1 | Im. |
| | 23* | 14 59 6·1 | 5 8 36·3 | Im. |
| | 27 | 4 17 17·4 | 18 40 48·3 | Im. |
| | 30 | 20 1 26·9 | 10 39 22·6 | Em. |
| III. | 1* | 8 32 3·3 | 21 13 45·7 | Im. |
| | 1* | 10 41 3·6 | 23 23 7·2 | Em. |
| | 8* | 12 33 48·0 | 1 43 46·0 | Im. |
| | 8* | 14 42 10·5 | 3 52 29·5 | Em. |
| | 15* | 16 35 13·0 | 6 13 26·5 | Im. |
| | 22 | 20 36 58·3 | 10 43 27·4 | Im. |
| | 30 | 2 44 56·4 | 17 20 1·8 | Em. |

## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shadows. | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egress. |
| | d h m | d h m | d h m | d h m | d h m | d h m |
| I. | | 1 12 26 | 1 13 5 | 1 15 16 | 0 12 22 | 1 14 34 |
| | | 3† 6 59 | 2 7 38 | 2 9 49 | 2 6 57 | 2 9 10 |
| | | 5* 1 32 | 4* 2 11 | 4* 4 22 | 4* 1 33 | 4* 3 46 |
| | In | 7† 20 5 | 6* 20 44 | 6* 22 55 | 6† 20 8 | 6* 22 21 |
| | | 9 14 38 | 8 15 17 | 8 17 28 | 8 14 44 | 8 16 57 |
| | | 10 9 11 | 9 9 50 | 9 12 1 | 9 9 19 | 9 11 32 |
| | | 12* 3 44 | 11* 4 23 | 11* 6 34 | 11* 3 55 | 11* 6 8 |
| | the | 14* 22 17 | 13* 22 56 | 13* 1 7 | 13* 22 31 | 13* 0 43 |
| | | 16 16 50 | 15 17 29 | 15† 19 40 | 15 17 6 | 15† 19 19 |
| | | 17 11 23 | 16 12 2 | 17 14 13 | 16 11 42 | 17 13 55 |
| | | 19* 5 56 | 18* 6 34 | 18 8 45 | 18* 6 18 | 18 8 30 |
| | Shadow. | 21* 0 29 | 20* 1 7 | 20* 3 18 | 20* 0 53 | 20* 3 6 |
| | | 23 19 1 | 22† 19 40 | 22* 21 51 | 22† 19 29 | 22* 21 41 |
| | | 24 13 34 | 24 14 13 | 24 16 24 | 23 14 4 | 24 16 17 |
| | | 26* 8 7 | 25† 8 46 | 25 10 57 | 25† 8 40 | 25 10 53 |
| | 28* 0 29 | 28* 2 40 | 27* 3 19 | 27* 5 30 | 27* 3 16 | 27* 5 28 |
| | 30 19 2 | In the | 29* 21 51 | 29* 0 2 | 29* 21 52 | 29* 0 4 |
| | 31 13 35 | Shadow. | 31 16 24 | 31 18 35 | 31 16 27 | 31 18 40 |
| II. | | 2* 23 43 | 4 15 29 | 4 17 54 | 4 14 9 | 4 16 41 |
| | | 6 13 6 | 7* 4 51 | 7† 7 16 | 7* 3 41 | 7* 6 13 |
| | In | 9* 2 27 | 11 18 12 | 11* 20 38 | 11 17 14 | 11† 19 45 |
| | | 13 15 49 | 14† 7 34 | 14 9 59 | 14* 6 46 | 14 9 18 |
| | the | 16* 5 10 | 18* 20 55 | 18* 23 20 | 18* 20 18 | 18* 22 50 |
| | | 20 18 31 | 21 10 16 | 21 12 41 | 21 9 51 | 21 12 22 |
| | Shadow. | 23* 7 51 | 25* 23 37 | 25* 2 3 | 25* 23 23 | 25* 1 55 |
| | | 27* 21 12 | 28 12 58 | 29 15 24 | 28 12 56 | 29 15 27 |
| | 30* 8 7 | In the | | | | |
| | | Shadow. | | | | |
| III. | 1* 0 10 | 1* 2 4 | 5 14 10 | 5 16 3 | 4 11 26 | 5 13 51 |
| | 8* 3 59 | 8* 5 52 | 12 17 56 | 12† 19 49 | 12 15 55 | 12 18 19 |
| | In the | 15 9 39 | 19* 21 39 | 19* 23 35 | 19* 20 24 | 19* 22 48 |
| | Shadow. | 22 13 24 | 26* 1 21 | 26* 3 19 | 26* 0 53 | 26* 3 17 |
| | 30 15 9 | In the | | | | |
| | | Shadow. | | | | |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of | | | | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding $0^d.840658$. | From Mean Noon of January 1. | |
|---|---|---|---|---|---|---|---|
| A | B | C | D | | Days. | Day of the Year. | Fraction of the Year. |
| | | | | h m s | | | |
| +1 ·2663 | +0 ·4858 | +0 ·0010 | +0 ·7492 | 11 17 50 ·38 | 192 | 273 | ·747 |
| 1 ·2651 | 0 ·5323 | 0 ·0018 | 0 ·7502 | 11 13 54 ·47 | 193 | 274 | ·750 |
| 1 ·2638 | 0 ·5742 | 0 ·0025 | 0 ·7512 | 11 9 58 ·56 | 194 | 275 | ·753 |
| +1 ·2623 | +0 ·6123 | +0 ·0033 | +0 ·7523 | 11 6 2 ·66 | 195 | 276 | ·756 |
| 1 ·2607 | 0 ·6472 | 0 ·0040 | 0 ·7533 | 11 2 6 ·75 | 196 | 277 | ·758 |
| 1 ·2590 | 0 ·6795 | 0 ·0048 | 0 ·7545 | 10 58 10 ·84 | 197 | 278 | ·761 |
| +1 ·2571 | +0 ·7094 | +0 ·0055 | +0 ·7557 | 10 54 14 ·94 | 198 | 279 | ·764 |
| 1 ·2551 | 0 ·7372 | 0 ·0063 | 0 ·7569 | 10 50 19 ·03 | 199 | 280 | ·767 |
| 1 ·2529 | 0 ·7633 | 0 ·0071 | 0 ·7581 | 10 46 23 ·13 | 200 | 281 | ·769 |
| +1 ·2506 | +0 ·7878 | +0 ·0078 | +0 ·7594 | 10 42 27 ·22 | 201 | 282 | ·772 |
| 1 ·2482 | 0 ·8108 | 0 ·0086 | 0 ·7607 | 10 38 31 ·31 | 202 | 283 | ·775 |
| 1 ·2456 | 0 ·8326 | 0 ·0094 | 0 ·7621 | 10 34 35 ·41 | 203 | 284 | ·778 |
| +1 ·2429 | +0 ·8533 | +0 ·0102 | +0 ·7635 | 10 30 39 ·50 | 204 | 285 | ·780 |
| 1 ·2400 | 0 ·8729 | 0 ·0110 | 0 ·7649 | 10 26 43 ·59 | 205 | 286 | ·783 |
| 1 ·2369 | 0 ·8915 | 0 ·0118 | 0 ·7664 | 10 22 47 ·69 | 206 | 287 | ·786 |
| +1 ·2337 | +0 ·9092 | +0 ·0126 | +0 ·7679 | 10 18 51 ·78 | 207 | 288 | ·789 |
| 1 ·2304 | 0 ·9261 | 0 ·0134 | 0 ·7694 | 10 14 55 ·87 | 208 | 289 | ·791 |
| 1 ·2269 | 0 ·9423 | 0 ·0142 | 0 ·7709 | 10 10 59 ·96 | 209 | 290 | ·794 |
| +1 ·2232 | +0 ·9578 | +0 ·0151 | +0 ·7725 | 10 7 4 ·06 | 210 | 291 | ·797 |
| 1 ·2194 | 0 ·9726 | 0 ·0159 | 0 ·7741 | 10 3 8 ·15 | 211 | 292 | ·799 |
| 1 ·2154 | 0 ·9869 | 0 ·0168 | 0 ·7757 | 9 59 12 ·24 | 212 | 293 | ·802 |
| +1 ·2112 | +1 ·0005 | +0 ·0176 | +0 ·7774 | 9 55 16 ·34 | 213 | 294 | ·805 |
| 1 ·2068 | 1 ·0136 | 0 ·0185 | 0 ·7790 | 9 51 20 ·43 | 214 | 295 | ·808 |
| 1 ·2023 | 1 ·0262 | 0 ·0194 | 0 ·7807 | 9 47 24 ·52 | 215 | 296 | ·810 |
| +1 ·1976 | +1 ·0384 | +0 ·0203 | +0 ·7824 | 9 43 28 ·61 | 216 | 297 | ·813 |
| 1 ·1927 | 1 ·0501 | 0 ·0212 | 0 ·7841 | 9 39 32 ·71 | 217 | 298 | ·816 |
| 1 ·1876 | 1 ·0613 | 0 ·0221 | 0 ·7858 | 9 35 36 ·80 | 218 | 299 | ·819 |
| +1 ·1823 | +1 ·0722 | +0 ·0230 | +0 ·7875 | 9 31 40 ·89 | 219 | 300 | ·821 |
| 1 ·1768 | 1 ·0826 | 0 ·0239 | 0 ·7892 | 9 27 44 ·98 | 220 | 301 | ·824 |
| 1 ·1711 | 1 ·0927 | 0 ·0249 | 0 ·7910 | 9 23 49 ·07 | 221 | 302 | ·827 |
| 1 ·1651 | 1 ·1025 | 0 ·0258 | 0 ·7927 | 9 19 53 ·17 | 222 | 303 | ·830 |
| +1 ·1590 | +1 ·1119 | +0 ·0268 | +0 ·7945 | 9 15 57 ·26 | 223 | 304 | ·832 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, *to be subtracted from Apparent Time.* | I |
|---|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s | |
| Sat. | 1 | 14 26 12 ·03 | 9 ·826 | S. 14 29 21 ·5 | 47 ·78 | 1 6 ·90 | 16 16 ·71 | 0 |
| *Sun.* | 2 | 14 30 7 ·86 | 9 ·859 | 14 48 28 ·2 | 47 ·18 | 1 7 ·01 | 16 17 ·43 | 0 |
| Mon. | 3 | 14 34 4 ·48 | 9 ·893 | 15 7 20 ·4 | 46 ·55 | 1 7 ·13 | 16 17 ·37 | 0 |
| Tues. | 4 | 14 38 1 ·90 | 9 ·927 | 15 25 57 ·6 | 45 ·92 | 1 7 ·24 | 16 16 ·50 | 0 |
| Wed. | 5 | 14 42 0 ·14 | 9 ·960 | 15 44 19 ·6 | 45 ·26 | 1 7 ·36 | 16 14 ·82 | 0 |
| Thur. | 6 | 14 45 59 ·19 | 9 ·995 | 16 2 25 ·9 | 44 ·59 | 1 7 ·47 | 16 12 ·33 | 0 |
| Frid. | 7 | 14 49 59 ·06 | 10 ·029 | 16 20 16 ·0 | 43 ·90 | 1 7 ·59 | 16 9 ·03 | 0 |
| Sat. | 8 | 14 53 59 ·75 | 10 ·063 | 16 37 49 ·5 | 43 ·20 | 1 7 ·71 | 16 4 ·90 | 0 |
| *Sun.* | 9 | 14 58 1 ·27 | 10 ·098 | 16 55 6 ·2 | 42 ·47 | 1 7 ·83 | 15 59 ·95 | 0 |
| Mon. | 10 | 15 2 3 ·62 | 10 ·133 | 17 12 5 ·5 | 41 ·73 | 1 7 ·95 | 15 54 ·17 | 0 |
| Tues. | 11 | 15 6 6 ·80 | 10 ·168 | 17 28 47 ·0 | 40 ·98 | 1 8 ·07 | 15 47 ·56 | 0 |
| Wed. | 12 | 15 10 10 ·82 | 10 ·203 | 17 45 10 ·5 | 40 ·20 | 1 8 ·19 | 15 40 ·12 | 0 |
| Thur. | 13 | 15 14 15 ·69 | 10 ·238 | 18 1 15 ·4 | 39 ·42 | 1 8 ·31 | 15 31 ·83 | 0 |
| Frid. | 14 | 15 18 21 ·41 | 10 ·273 | 18 17 1 ·5 | 38 ·62 | 1 8 ·43 | 15 22 ·69 | 0 |
| Sat. | 15 | 15 22 27 ·97 | 10 ·309 | 18 32 28 ·3 | 37 ·80 | 1 8 ·55 | 15 12 ·71 | 0 |
| *Sun.* | 16 | 15 26 35 ·39 | 10 ·344 | 18 47 35 ·4 | 36 ·96 | 1 8 ·67 | 15 1 ·88 | 0 |
| Mon. | 17 | 15 30 43 ·65 | 10 ·379 | 19 2 22 ·5 | 36 ·11 | 1 8 ·78 | 14 50 ·21 | 0 |
| Tues. | 18 | 15 34 52 ·75 | 10 ·415 | 19 16 49 ·2 | 35 ·25 | 1 8 ·90 | 14 37 ·69 | 0 |
| Wed. | 19 | 15 39 2 ·70 | 10 ·450 | 19 30 55 ·1 | 34 ·36 | 1 9 ·01 | 14 24 ·33 | 0 |
| Thur. | 20 | 15 43 13 ·49 | 10 ·485 | 19 44 39 ·8 | 33 ·47 | 1 9 ·12 | 14 10 ·13 | 0 |
| Frid. | 21 | 15 47 25 ·12 | 10 ·518 | 19 58 3 ·1 | 32 ·55 | 1 9 ·23 | 13 55 ·11 | 0 |
| Sat. | 22 | 15 51 37 ·56 | 10 ·552 | 20 11 4 ·4 | 31 ·62 | 1 9 ·34 | 13 39 ·26 | 0 |
| *Sun.* | 23 | 15 55 50 ·82 | 10 ·586 | 20 23 43 ·4 | 30 ·69 | 1 9 ·44 | 13 22 ·61 | 0 |
| Mon. | 24 | 16 0 4 ·88 | 10 ·618 | 20 35 59 ·9 | 29 ·73 | 1 9 ·55 | 13 5 ·16 | 0 |
| Tues. | 25 | 16 4 19 ·72 | 10 ·650 | 20 47 53 ·4 | 28 ·76 | 1 9 ·65 | 12 46 ·92 | 0 |
| Wed. | 26 | 16 8 35 ·33 | 10 ·682 | 20 59 23 ·6 | 27 ·77 | 1 9 ·75 | 12 27 ·92 | 0 |
| Thur. | 27 | 16 12 51 ·69 | 10 ·712 | 21 10 30 ·1 | 26 ·77 | 1 9 ·85 | 12 8 ·17 | 0 |
| Frid. | 28 | 16 17 8 ·78 | 10 ·741 | 21 21 12 ·7 | 25 ·76 | 1 9 ·95 | 11 47 ·69 | 0 |
| Sat. | 29 | 16 21 26 ·57 | 10 ·770 | 21 31 31 ·0 | 24 ·74 | 1 10 ·04 | 11 26 ·52 | 0 |
| *Sun.* | 30 | 16 25 45 ·04 | 10 ·797 | 21 41 24 ·7 | 23 ·70 | 1 10 ·13 | 11 4 ·67 | 0 |
| Mon. | 31 | 16 30 4 ·17 | | S. 21 50 53 ·5 | | 1 10 ·22 | 10 42 ·15 | |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0m·19 from the *Sidereal* T

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, *to be added to Mean Time.* | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| t. | 1 | 14 26 14 ·70 | S. 14 29 34 ·4 | 16 8 ·9 | 16 16 ·71 | 14 42 31 ·41 |
| n. | 2 | 14 30 10 ·53 | 14 48 41 ·0 | 16 9 ·1 | 16 17 ·43 | 14 46 27 ·97 |
| on. | 3 | 14 34 7 ·16 | 15 7 33 ·0 | 16 9 ·4 | 16 17 ·36 | 14 50 24 ·52 |
| es. | 4 | 14 38 4 ·59 | 15 26 10 ·1 | 16 9 ·6 | 16 16 ·49 | 14 54 21 ·08 |
| ed. | 5 | 14 42 2 ·83 | 15 44 31 ·9 | 16 9 ·9 | 16 14 ·80 | 14 58 17 ·63 |
| ur. | 6 | 14 46 1 ·89 | 16 2 37 ·9 | 16 10 ·1 | 16 12 ·30 | 15 2 14 ·19 |
| id. | 7 | 14 50 1 ·76 | 16 20 27 ·8 | 16 10 ·4 | 16 8 ·99 | 15 6 10 ·74 |
| . | 8 | 14 54 2 ·45 | 16 38 1 ·1 | 16 10 ·6 | 16 4 ·85 | 15 10 7 ·30 |
| n. | 9 | 14 58 3 ·96 | 16 55 17 ·5 | 16 10 ·8 | 15 59 ·89 | 15 14 3 ·85 |
| n. | 10 | 15 2 6 ·30 | 17 12 16 ·5 | 16 11 ·1 | 15 54 ·10 | 15 18 0 ·40 |
| es. | 11 | 15 6 9 ·48 | 17 28 57 ·8 | 16 11 ·3 | 15 47 ·48 | 15 21 56 ·96 |
| d. | 12 | 15 10 13 ·49 | 17 45 21 ·0 | 16 11 ·5 | 15 40 ·03 | 15 25 53 ·51 |
| ur. | 13 | 15 14 18 ·34 | 18 1 25 ·6 | 16 11 ·7 | 15 31 ·73 | 15 29 50 ·07 |
| d. | 14 | 15 18 24 ·04 | 18 17 11 ·4 | 16 11 ·9 | 15 22 ·58 | 15 33 46 ·62 |
| . | 15 | 15 22 30 ·59 | 18 32 37 ·9 | 16 12 ·2 | 15 12 ·59 | 15 37 43 ·18 |
| n. | 16 | 15 26 37 ·98 | 18 47 44 ·7 | 16 12 ·4 | 15 1 ·75 | 15 41 39 ·74 |
| m. | 17 | 15 30 46 ·21 | 19 2 31 ·5 | 16 12 ·6 | 14 50 ·08 | 15 45 36 ·29 |
| es. | 18 | 15 34 55 ·29 | 19 16 57 ·8 | 16 12 ·8 | 14 37 ·55 | 15 49 32 ·85 |
| ed. | 19 | 15 39 5 ·21 | 19 31 3 ·3 | 16 12 ·9 | 14 24 ·19 | 15 53 29 ·40 |
| ur. | 20 | 15 43 15 ·97 | 19 44 47 ·7 | 16 13 ·1 | 14 9 ·99 | 15 57 25 ·96 |
| d. | 21 | 15 47 27 ·56 | 19 58 10 ·6 | 16 13 ·3 | 13 54 ·95 | 16 1 22 ·51 |
| . | 22 | 15 51 39 ·97 | 20 11 11 ·6 | 16 13 ·5 | 13 39 ·11 | 16 5 19 ·07 |
| n. | 23 | 15 55 53 ·18 | 20 23 50 ·3 | 16 13 ·7 | 13 22 ·45 | 16 9 15 ·63 |
| on. | 24 | 16 0 7 ·19 | 20 36 6 ·4 | 16 13 ·8 | 13 4 ·99 | 16 13 12 ·18 |
| es. | 25 | 16 4 21 ·99 | 20 47 59 ·5 | 16 14 ·0 | 12 46 ·75 | 16 17 8 ·74 |
| ed. | 26 | 16 8 37 ·55 | 20 59 29 ·3 | 16 14 ·2 | 12 27 ·75 | 16 21 5 ·30 |
| ur. | 27 | 16 12 53 ·86 | 21 10 35 ·5 | 16 14 ·3 | 12 7 ·99 | 16 25 1 ·85 |
| d. | 28 | 16 17 10 ·89 | 21 21 17 ·8 | 16 14 ·5 | 11 47 ·52 | 16 28 58 ·41 |
| . | 29 | 16 21 28 ·62 | 21 31 35 ·7 | 16 14 ·6 | 11 26 ·34 | 16 32 54 ·96 |
| n. | 30 | 16 25 47 ·03 | 21 41 29 ·0 | 16 14 ·8 | 11 4 ·49 | 16 36 51 ·52 |
| n. | 31 | 16 30 6 ·10 | S. 21 50 57 ·5 | 16 15 ·0 | 10 41 ·98 | 16 40 48 ·08 |

* The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S Apparent Longitude. Noon. | THE SUN'S Apparent Latitude. Noon. | Logarithm of the Radius Vector of the Earth. Noon. | THE MOON'S Semidiameter. Noon. | THE MOON'S Semidiameter. Midnight. | THE MOON'S Horizontal Parallax. Noon. | THE MOON'S Horizontal Parallax. Midnight. |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 1 | 218 57 11·1 | N.0·26 | 9·9964084 | 16 11·9 | 16 14·4 | 59 26·7 | 59 35·8 |
| 2 | 219 57 20·5 | 0·38 | 9·9962968 | 16 16·1 | 16 17·0 | 59 41·9 | 59 45·4 |
| 3 | 220 57 31·5 | 0·49 | 9·9961857 | 16 17·2 | 16 16·7 | 59 46·0 | 59 44·1 |
| 4 | 221 57 44·1 | 0·58 | 9·9960753 | 16 15·5 | 16 13·9 | 59 39·8 | 59 33·9 |
| 5 | 222 57 58·3 | 0·64 | 9·9959657 | 16 11·7 | 16 9·2 | 59 25·9 | 59 16·7 |
| 6 | 223 58 14·0 | 0·67 | 9·9958570 | 16 6·4 | 16 3·4 | 59 6·6 | 58 55·4 |
| 7 | 224 58 31·1 | 0·67 | 9·9957495 | 16 0·1 | 15 56·7 | 58 43·4 | 58 30·9 |
| 8 | 225 58 49·7 | 0·65 | 9·9956432 | 15 53·2 | 15 49·6 | 58 18·0 | 58 4·7 |
| 9 | 226 59 9·7 | 0·59 | 9·9955384 | 15 45·8 | 15 42·0 | 57 50·9 | 57 36·9 |
| 10 | 227 59 31·2 | 0·51 | 9·9954352 | 15 38·2 | 15 34·2 | 57 22·8 | 57 8·4 |
| 11 | 228 59 54·1 | 0·40 | 9·9953339 | 15 30·2 | 15 26·3 | 56 53·7 | 56 39·1 |
| 12 | 230 0 18·4 | 0·28 | 9·9952343 | 15 22·2 | 15 18·2 | 56 24·3 | 56 9·4 |
| 13 | 231 0 44·3 | 0·15 | 9·9951367 | 15 14·2 | 15 10·3 | 55 54·9 | 55 40·6 |
| 14 | 232 1 11·8 | N.0·01 | 9·9950411 | 15 6·6 | 15 2·9 | 55 26·8 | 55 13·3 |
| 15 | 233 1 40·8 | S.0·12 | 9·9949476 | 14 59·4 | 14 56·3 | 55 0·7 | 54 49·1 |
| 16 | 234 2 11·5 | 0·24 | 9·9948561 | 14 53·3 | 14 50·8 | 54 38·3 | 54 28·9 |
| 17 | 235 2 43·7 | 0·35 | 9·9947668 | 14 48·6 | 14 46·9 | 54 21·0 | 54 14·6 |
| 18 | 236 3 17·7 | 0·44 | 9·9946794 | 14 45·7 | 14 45·0 | 54 10·1 | 54 7·5 |
| 19 | 237 3 53·3 | 0·49 | 9·9945940 | 14 44·8 | 14 45·3 | 54 7·0 | 54 8·7 |
| 20 | 238 4 30·7 | 0·52 | 9·9945107 | 14 46·4 | 14 48·2 | 54 12·8 | 54 19·5 |
| 21 | 239 5 9·8 | 0·51 | 9·9944293 | 14 50·7 | 14 53·9 | 54 28·7 | 54 40·4 |
| 22 | 240 5 50·5 | 0·48 | 9·9943497 | 14 57·8 | 15 2·4 | 54 54·6 | 55 11·6 |
| 23 | 241 6 32·9 | 0·42 | 9·9942716 | 15 7·6 | 15 13·4 | 55 30·7 | 55 52·1 |
| 24 | 242 7 16·9 | 0·34 | 9·9941950 | 15 19·8 | 15 26·6 | 56 15·5 | 56 40·3 |
| 25 | 243 8 2·5 | 0·23 | 9·9941197 | 15 33·7 | 15 41·1 | 57 6·6 | 57 33·7 |
| 26 | 244 8 49·6 | S.0·10 | 9·9940456 | 15 48·5 | 15 55·8 | 58 0·7 | 58 27·4 |
| 27 | 245 9 38·2 | N.0·02 | 9·9939729 | 16 2·8 | 16 9·4 | 58 53·3 | 59 17·4 |
| 28 | 246 10 28·1 | 0·15 | 9·9939016 | 16 15·4 | 16 20·6 | 59 39·4 | 59 58·5 |
| 29 | 247 11 19·2 | 0·27 | 9·9938316 | 16 24·9 | 16 28·1 | 60 14·4 | 60 26·2 |
| 30 | 248 12 11·4 | 0·38 | 9·9937628 | 16 30·4 | 16 31·5 | 60 34·4 | 60 38·[illegible] |
| 31 | 249 13 4·8 | N.0·47 | 9·9936954 | 16 31·5 | 16 30·3 | 60 38·4 | 60 34·2 |

## MEAN TIME.

### THE MOON'S

| Day of the Month. | Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| 1 | 238 47 44·4 | 245 57 0·2 | N.1 7 29·0 | N.1 45 38·6 | 1·5 | 1 7·4 |
| 2 | 253 8 4·3 | 260 20 19·9 | 2 22 17·4 | 2 56 46·6 | 2·5 | 2 6·7 |
| 3 | 267 33 10·3 | 274 46 0·8 | 3 28 29·4 | 3 56 52·9 | 3·5 | 3 6·6 |
| 4 | 281 58 19·4 | 289 9 36·6 | 4 21 28·9 | 4 41 54·4 | 4·5 | 4 5·6 |
| 5 | 296 19 26·5 | 303 27 26·8 | 4 57 51·5 | 5 9 7·9 | 5·5 | 5 2·5 |
| 6 | 310 33 18·4 | 317 36 45·3 | 5 15 37·4 | 5 17 18·3 | 6·5 | 5 56·7 |
| 7 | 324 37 34·9 | 331 35 36·6 | 5 14 14·1 | 5 6 33·2 | 7·5 | 6 48·4 |
| 8 | 338 30 42·0 | 345 22 44·9 | 4 54 27·8 | 4 38 13·7 | 8·5 | 7 38·3 |
| 9 | 352 11 40·0 | 358 57 23·7 | 4 18 10·2 | 3 54 39·5 | 9·5 | 8 27·0 |
| 10 | 5 39 52·6 | 12 19 4·5 | 3 28 5·6 | 2 58 54·5 | 10·5 | 9 15·3 |
| 11 | 18 54 57·6 | 25 27 30·8 | 2 27 34·0 | 1 54 32·3 | 11·5 | 10 3·8 |
| 12 | 31 56 43·3 | 38 22 35·8 | 1 20 18·1 | N.0 45 19·8 | 12·5 | 10 52·9 |
| 13 | 44 45 9·4 | 51 4 26·4 | N.0 10 5·7 | S.0 24 57·7 | 13·5 | 11 42·6 |
| 14 | 57 20 31·0 | 63 33 28·8 | S.0 59 24·6 | 1 32 51·0 | 14·5 | 12 32·7 |
| 15 | 69 43 27·4 | 75 50 36·9 | 2 4 55·3 | 2 35 17·7 | 15·5 | 13 22·7 |
| 16 | 81 55 9·5 | 87 57 20·4 | 3 3 40·4 | 3 29 47·9 | 16·5 | 14 12·0 |
| 17 | 93 57 26·7 | 99 55 48·5 | 3 53 26·5 | 4 14 24·7 | 17·5 | 15 0·0 |
| 18 | 105 52 48·3 | 111 48 51·1 | 4 32 32·5 | 4 47 41·3 | 18·5 | 15 46·6 |
| 19 | 117 44 24·1 | 123 39 56·5 | 4 59 44·5 | 5 8 35·4 | 19·5 | 16 31·7 |
| 20 | 129 35 59·4 | 135 33 5·3 | 5 14 9·7 | 5 16 22·7 | 20·5 | 17 15·6 |
| 21 | 141 31 48·0 | 147 32 42·3 | 5 15 11·5 | 5 10 33·0 | 21·5 | 17 58·9 |
| 22 | 153 36 23·1 | 159 43 25·6 | 5 2 26·0 | 4 50 49·5 | 22·5 | 18 42·4 |
| 23 | 165 54 23·7 | 172 9 50·4 | 4 35 44·4 | 4 17 12·7 | 23·5 | 19 26·7 |
| 24 | 178 30 16·4 | 184 56 8·9 | 3 55 18·6 | 3 30 9·1 | 24·5 | 20 13·0 |
| 25 | 191 27 51·5 | 198 5 42·3 | 3 1 54·2 | 2 30 47·2 | 25·5 | 21 1·9 |
| 26 | 204 49 53·3 | 211 40 28·9 | 1 57 6·1 | 1 21 13·5 | 26·5 | 21 54·4 |
| 27 | 218 37 25·4 | 225 40 30·1 | S.0 43 36·9 | S.0 4 48·4 | 27·5 | 22 50·6 |
| 28 | 232 49 20·2 | 240 3 23·9 | N.0 34 34·9 | N.1 13 52·0 | 28·5 | 23 50·2 |
| 29 | 247 21 59·5 | 254 44 17·6 | 1 52 19·3 | 2 29 11·9 | 0·0 | ♂ |
| 30 | 262 9 21·7 | 269 36 10·2 | 3 3 45·8 | 3 35 18·7 | 1·0 | 0 51·9 |
| 31 | 277 3 39·9 | 284 30 47·0 | N.4 3 13·5 | N.4 26 57·8 | 2·0 | 1 53·7 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *SATURDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 15 47 17 ·76 | S. 18 48 31 ·1 | 45 ·63 |
| 1 | 15 49 47 ·95 | 18 53 4 ·9 | 44 ·40 |
| 2 | 15 52 18 ·34 | 18 57 31 ·3 | 43 ·15 |
| 3 | 15 54 48 ·92 | 19 1 50 ·2 | 41 ·90 |
| 4 | 15 57 19 ·69 | 19 6 1 ·6 | 40 ·62 |
| 5 | 15 59 50 ·64 | 19 10 5 ·3 | 39 ·37 |
| 6 | 16 2 21 ·77 | 19 14 1 ·5 | 38 ·07 |
| 7 | 16 4 53 ·07 | 19 17 49 ·9 | 36 ·80 |
| 8 | 16 7 24 ·55 | 19 21 30 ·7 | 35 ·50 |
| 9 | 16 9 56 ·18 | 19 25 3 ·7 | 34 ·18 |
| 10 | 16 12 27 ·98 | 19 28 28 ·8 | 32 ·90 |
| 11 | 16 14 59 ·93 | 19 31 46 ·2 | 31 ·57 |
| 12 | 16 17 32 ·03 | 19 34 55 ·6 | 30 ·25 |
| 13 | 16 20 4 ·27 | 19 37 57 ·1 | 28 ·93 |
| 14 | 16 22 36 ·64 | 19 40 50 ·7 | 27 ·58 |
| 15 | 16 25 9 ·15 | 19 43 36 ·2 | 26 ·27 |
| 16 | 16 27 41 ·78 | 19 46 13 ·8 | 24 ·90 |
| 17 | 16 30 14 ·53 | 19 48 43 ·2 | 23 ·57 |
| 18 | 16 32 47 ·39 | 19 51 4 ·6 | 22 ·22 |
| 19 | 16 35 20 ·36 | 19 53 17 ·9 | 20 ·85 |
| 20 | 16 37 53 ·44 | 19 55 23 ·0 | 19 ·48 |
| 21 | 16 40 26 ·61 | 19 57 19 ·9 | 18 ·13 |
| 22 | 16 42 59 ·87 | 19 59 8 ·7 | 16 ·75 |
| 23 | 16 45 33 ·22 | S. 20 0 49 ·2 | 15 ·38 |
| | *SUNDAY* 2. | | |
| 0 | 16 48 6 ·64 | S. 20 2 21 ·5 | 14 ·00 |
| 1 | 16 50 40 ·14 | 20 3 45 ·5 | 12 ·62 |
| 2 | 16 53 13 ·70 | 20 5 1 ·2 | 11 ·25 |
| 3 | 16 55 47 ·32 | 20 6 8 ·7 | 9 ·85 |
| 4 | 16 58 20 ·99 | 20 7 7 ·8 | 8 ·47 |
| 5 | 17 0 54 ·72 | 20 7 58 ·6 | 7 ·08 |
| 6 | 17 3 28 ·48 | 20 8 41 ·1 | 5 ·70 |
| 7 | 17 6 2 ·28 | 20 9 15 ·3 | 4 ·30 |
| 8 | 17 8 36 ·11 | 20 9 41 ·1 | 2 ·90 |
| 9 | 17 11 9 ·96 | 20 9 58 ·5 | 1 ·52 |
| 10 | 17 13 43 ·83 | 20 10 7 ·6 | 0 ·12 |
| 11 | 17 16 17 ·71 | 20 10 8 ·3 | 1 ·27 |
| 12 | 17 18 51 ·59 | 20 10 0 ·7 | 2 ·67 |
| 13 | 17 21 25 ·47 | 20 9 44 ·7 | 4 ·07 |
| 14 | 17 23 59 ·34 | 20 9 20 ·3 | 5 ·45 |
| 15 | 17 26 33 ·20 | 20 8 47 ·6 | 6 ·83 |
| 16 | 17 29 7 ·04 | 20 8 6 ·6 | 8 ·23 |
| 17 | 17 31 40 ·85 | 20 7 17 ·2 | 9 ·63 |
| 18 | 17 34 14 ·63 | 20 6 19 ·4 | 11 ·00 |
| 19 | 17 36 48 ·37 | 20 5 13 ·4 | 12 ·40 |
| 20 | 17 39 22 ·06 | 20 3 59 ·0 | 13 ·78 |
| 21 | 17 41 55 ·70 | 20 2 36 ·3 | 15 ·15 |
| 22 | 17 44 29 ·29 | 20 1 5 ·4 | 16 ·53 |
| 23 | 17 47 2 ·81 | 19 59 26 ·2 | 17 ·92 |
| 24 | 17 49 36 ·27 | S. 19 57 38 ·7 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *MONDAY* 3. | |
| | h m s | ° ′ ″ |
| 0 | 17 49 36 ·27 | S. 19 57 38 ·7 |
| 1 | 17 52 9 ·65 | 19 55 43 ·0 |
| 2 | 17 54 42 ·95 | 19 53 39 ·1 |
| 3 | 17 57 16 ·17 | 19 51 27 ·0 |
| 4 | 17 59 49 ·30 | 19 49 6 ·7 |
| 5 | 18 2 22 ·33 | 19 46 38 ·3 |
| 6 | 18 4 55 ·25 | 19 44 1 ·8 |
| 7 | 18 7 28 ·07 | 19 41 17 ·2 |
| 8 | 18 10 0 ·78 | 19 38 24 ·6 |
| 9 | 18 12 33 ·38 | 19 35 24 ·0 |
| 10 | 18 15 5 ·85 | 19 32 15 ·3 |
| 11 | 18 17 38 ·19 | 19 28 58 ·7 |
| 12 | 18 20 10 ·40 | 19 25 34 ·2 |
| 13 | 18 22 42 ·47 | 19 22 1 ·8 |
| 14 | 18 25 14 ·40 | 19 18 21 ·6 |
| 15 | 18 27 46 ·18 | 19 14 33 ·5 |
| 16 | 18 30 17 ·81 | 19 10 37 ·7 |
| 17 | 18 32 49 ·28 | 19 6 34 ·2 |
| 18 | 18 35 20 ·59 | 19 2 23 ·0 |
| 19 | 18 37 51 ·74 | 18 58 4 ·2 |
| 20 | 18 40 22 ·72 | 18 53 37 ·7 |
| 21 | 18 42 53 ·52 | 18 49 3 ·8 |
| 22 | 18 45 24 ·15 | 18 44 22 ·3 |
| 23 | 18 47 54 ·60 | S. 18 39 33 ·4 |
| | *TUESDAY* 4. | |
| 0 | 18 50 24 ·86 | S. 18 34 37 ·1 |
| 1 | 18 52 54 ·93 | 18 29 33 ·4 |
| 2 | 18 55 24 ·81 | 18 24 22 ·5 |
| 3 | 18 57 54 ·49 | 18 19 4 ·3 |
| 4 | 19 0 23 ·97 | 18 13 38 ·9 |
| 5 | 19 2 53 ·25 | 18 8 6 ·4 |
| 6 | 19 5 22 ·32 | 18 2 26 ·9 |
| 7 | 19 7 51 ·18 | 17 56 40 ·3 |
| 8 | 19 10 19 ·83 | 17 50 46 ·7 |
| 9 | 19 12 48 ·27 | 17 44 46 ·2 |
| 10 | 19 15 16 ·49 | 17 38 38 ·9 |
| 11 | 19 17 44 ·49 | 17 32 24 ·8 |
| 12 | 19 20 12 ·26 | 17 26 4 ·0 |
| 13 | 19 22 39 ·81 | 17 19 36 ·5 |
| 14 | 19 25 7 ·13 | 17 13 2 ·4 |
| 15 | 19 27 34 ·23 | 17 6 21 ·8 |
| 16 | 19 30 1 ·09 | 16 59 34 ·7 |
| 17 | 19 32 27 ·71 | 16 52 41 ·2 |
| 18 | 19 34 54 ·11 | 16 45 41 ·4 |
| 19 | 19 37 20 ·26 | 16 38 35 ·2 |
| 20 | 19 39 46 ·18 | 16 31 22 ·9 |
| 21 | 19 42 11 ·85 | 16 24 4 ·4 |
| 22 | 19 44 37 ·29 | 16 16 39 ·8 |
| 23 | 19 47 2 ·48 | 16 9 9 ·3 |
| 24 | 19 49 27 ·43 | S. 16 1 32 ·7 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|
| *WEDNESDAY* 5. | | |
| h m s | ° ′ ″ | ″ |
| ) 49 27 ·43 | S. 16 1 32 ·7 | 77 ·07 |
| ) 51 52 ·13 | 15 53 50 ·3 | 78 ·03 |
| ) 54 16 ·59 | 15 46 2 ·1 | 79 ·00 |
| ) 56 40 ·80 | 15 38 8 ·1 | 79 ·93 |
| ) 59 4 ·77 | 15 30 8 ·5 | 80 ·88 |
| ) 1 28 ·48 | 15 22 3 ·2 | 81 ·78 |
| ) 3 51 ·95 | 15 13 52 ·5 | 82 ·72 |
| ) 6 15 ·16 | 15 5 36 ·2 | 83 ·60 |
| ) 8 38 ·13 | 14 57 14 ·6 | 84 ·50 |
| ) 11 0 ·84 | 14 48 47 ·6 | 85 ·37 |
| ) 13 23 ·31 | 14 40 15 ·4 | 86 ·23 |
| ) 15 45 ·53 | 14 31 38 ·0 | 87 ·08 |
| ) 18 7 ·49 | 14 22 55 ·5 | 87 ·93 |
| ) 20 29 ·20 | 14 14 7 ·9 | 88 ·75 |
| ) 22 50 ·67 | 14 5 15 ·4 | 89 ·57 |
| ) 25 11 ·89 | 13 56 18 ·0 | 90 ·38 |
| ) 27 32 ·85 | 13 47 15 ·7 | 91 ·17 |
| ) 29 53 ·57 | 13 38 8 ·7 | 91 ·95 |
| ) 32 14 ·04 | 13 28 57 ·0 | 92 ·72 |
| ) 34 34 ·26 | 13 19 40 ·7 | 93 ·47 |
| ) 36 54 ·23 | 13 10 19 ·9 | 94 ·22 |
| ) 39 13 ·96 | 13 0 54 ·6 | 94 ·95 |
| ) 41 33 ·44 | 12 51 24 ·9 | 95 ·67 |
| ) 43 52 ·68 | S. 12 41 50 ·9 | 96 ·37 |
| *THURSDAY* 6. | | |
| 46 11 ·67 | S. 12 32 12 ·7 | 97 ·07 |
| 48 30 ·42 | 12 22 30 ·3 | 97 ·75 |
| 50 48 ·93 | 12 12 43 ·8 | 98 ·42 |
| 53 7 ·20 | 12 2 53 ·3 | 99 ·08 |
| 55 25 ·24 | 11 52 58 ·8 | 99 ·73 |
| 57 43 ·03 | 11 43 0 ·4 | 100 ·37 |
| 0 0 ·59 | 11 32 58 ·2 | 100 ·98 |
| 2 17 ·92 | 11 22 52 ·3 | 101 ·58 |
| 4 35 ·02 | 11 12 42 ·8 | 102 ·20 |
| 6 51 ·88 | 11 2 29 ·6 | 102 ·78 |
| 9 8 ·52 | 10 52 12 ·9 | 103 ·38 |
| 11 24 ·93 | 10 41 52 ·8 | 103 ·92 |
| 13 41 ·11 | 10 31 29 ·3 | 104 ·47 |
| 15 57 ·07 | 10 21 2 ·5 | 105 ·00 |
| 18 12 ·81 | 10 10 32 ·5 | 105 ·53 |
| 20 28 ·33 | 9 59 59 ·3 | 106 ·05 |
| 22 43 ·63 | 9 49 23 ·0 | 106 ·55 |
| 24 58 ·72 | 9 38 43 ·7 | 107 ·05 |
| 27 13 ·59 | 9 28 1 ·4 | 107 ·52 |
| 29 28 ·25 | 9 17 16 ·3 | 107 ·98 |
| 31 42 ·71 | 9 6 28 ·4 | 108 ·45 |
| 33 56 ·96 | 8 55 37 ·7 | 108 ·88 |
| 36 11 ·00 | 8 44 44 ·4 | 109 ·33 |
| 38 24 ·85 | 8 33 48 ·4 | 109 ·73 |
| 40 38 ·49 | S. 8 22 50 ·0 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| *FRIDAY* 7. | | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 21 40 38 ·49 | S. 8 22 50 ·0 | 110 ·15 |
| 1 | 21 42 51 ·94 | 8 11 49 ·1 | 110 ·55 |
| 2 | 21 45 5 ·19 | 8 0 45 ·8 | 110 ·93 |
| 3 | 21 47 18 ·25 | 7 49 40 ·2 | 111 ·30 |
| 4 | 21 49 31 ·12 | 7 38 32 ·4 | 111 ·67 |
| 5 | 21 51 43 ·80 | 7 27 22 ·4 | 112 ·03 |
| 6 | 21 53 56 ·30 | 7 16 10 ·2 | 112 ·35 |
| 7 | 21 56 8 ·62 | 7 4 56 ·1 | 112 ·70 |
| 8 | 21 58 20 ·76 | 6 53 39 ·9 | 113 ·00 |
| 9 | 22 0 32 ·72 | 6 42 21 ·9 | 113 ·30 |
| 10 | 22 2 44 ·51 | 6 31 2 ·1 | 113 ·62 |
| 11 | 22 4 56 ·12 | 6 19 40 ·4 | 113 ·88 |
| 12 | 22 7 7 ·57 | 6 8 17 ·1 | 114 ·17 |
| 13 | 22 9 18 ·85 | 5 56 52 ·1 | 114 ·42 |
| 14 | 22 11 29 ·97 | 5 45 25 ·6 | 114 ·67 |
| 15 | 22 13 40 ·94 | 5 33 57 ·6 | 114 ·90 |
| 16 | 22 15 51 ·74 | 5 22 28 ·2 | 115 ·13 |
| 17 | 22 18 2 ·39 | 5 10 57 ·4 | 115 ·35 |
| 18 | 22 20 12 ·89 | 4 59 25 ·3 | 115 ·55 |
| 19 | 22 22 23 ·24 | 4 47 52 ·0 | 115 ·75 |
| 20 | 22 24 33 ·44 | 4 36 17 ·5 | 115 ·93 |
| 21 | 22 26 43 ·51 | 4 24 41 ·9 | 116 ·10 |
| 22 | 22 28 53 ·44 | 4 13 5 ·3 | 116 ·25 |
| 23 | 22 31 3 ·23 | S. 4 1 27 ·8 | 116 ·42 |
| *SATURDAY* 8. | | | |
| 0 | 22 33 12 ·88 | S. 3 49 49 ·3 | 116 ·55 |
| 1 | 22 35 22 ·40 | 3 38 10 ·0 | 116 ·67 |
| 2 | 22 37 31 ·80 | 3 26 30 ·0 | 116 ·80 |
| 3 | 22 39 41 ·08 | 3 14 49 ·2 | 116 ·90 |
| 4 | 22 41 50 ·23 | 3 3 7 ·8 | 117 ·00 |
| 5 | 22 43 59 ·26 | 2 51 25 ·8 | 117 ·07 |
| 6 | 22 46 8 ·18 | 2 39 43 ·4 | 117 ·17 |
| 7 | 22 48 16 ·98 | 2 28 0 ·4 | 117 ·22 |
| 8 | 22 50 25 ·67 | 2 16 17 ·1 | 117 ·27 |
| 9 | 22 52 34 ·26 | 2 4 33 ·5 | 117 ·32 |
| 10 | 22 54 42 ·74 | 1 52 49 ·6 | 117 ·35 |
| 11 | 22 56 51 ·12 | 1 41 5 ·5 | 117 ·37 |
| 12 | 22 58 59 ·40 | 1 29 21 ·3 | 117 ·38 |
| 13 | 23 1 7 ·59 | 1 17 37 ·0 | 117 ·38 |
| 14 | 23 3 15 ·69 | 1 5 52 ·7 | 117 ·37 |
| 15 | 23 5 23 ·69 | 0 54 8 ·5 | 117 ·35 |
| 16 | 23 7 31 ·61 | 0 42 24 ·4 | 117 ·33 |
| 17 | 23 9 39 ·45 | 0 30 40 ·4 | 117 ·28 |
| 18 | 23 11 47 ·21 | 0 18 56 ·7 | 117 ·23 |
| 19 | 23 13 54 ·89 | S. 0 7 13 ·3 | 117 ·17 |
| 20 | 23 16 2 ·49 | N. 0 4 29 ·7 | 117 ·10 |
| 21 | 23 18 10 ·03 | 0 16 12 ·3 | 117 ·02 |
| 22 | 23 20 17 ·49 | 0 27 54 ·4 | 116 ·93 |
| 23 | 23 22 24 ·89 | 0 39 36 ·0 | 116 ·83 |
| 24 | 23 24 32 ·22 | N. 0 51 17 ·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. |
|---|---|---|---|---|---|---|
| | *SUNDAY* 9. | | | | *TUESDAY* 11. | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ |
| 0 | 23 24 32 ·22 | N. 0 51 17 ·0 | 116 ·72 | 0 | 1 6 1 ·01 | N. 9 41 19 ·1 |
| 1 | 23 26 39 ·50 | 1 2 57 ·3 | 116 ·60 | 1 | 1 8 8 ·29 | 9 51 20 ·7 |
| 2 | 23 28 46 ·71 | 1 14 36 ·9 | 116 ·48 | 2 | 1 10 15 ·61 | 10 1 18 ·9 |
| 3 | 23 30 53 ·88 | 1 26 15 ·8 | 116 ·32 | 3 | 1 12 22 ·98 | 10 11 13 ·7 |
| 4 | 23 33 0 ·99 | 1 37 53 ·7 | 116 ·18 | 4 | 1 14 30 ·40 | 10 21 5 ·0 |
| 5 | 23 35 8 ·05 | 1 49 30 ·8 | 116 ·02 | 5 | 1 16 37 ·88 | 10 30 52 ·8 |
| 6 | 23 37 15 ·07 | 2 1 6 ·9 | 115 ·85 | 6 | 1 18 45 ·40 | 10 40 37 ·1 |
| 7 | 23 39 22 ·04 | 2 12 42 ·0 | 115 ·67 | 7 | 1 20 52 ·98 | 10 50 17 ·7 |
| 8 | 23 41 28 ·98 | 2 24 16 ·0 | 115 ·48 | 8 | 1 23 0 ·61 | 10 59 54 ·7 |
| 9 | 23 43 35 ·87 | 2 35 48 ·9 | 115 ·27 | 9 | 1 25 8 ·30 | 11 9 28 ·0 |
| 10 | 23 45 42 ·73 | 2 47 20 ·5 | 115 ·07 | 10 | 1 27 16 ·04 | 11 18 57 ·5 |
| 11 | 23 47 49 ·56 | 2 58 50 ·9 | 114 ·85 | 11 | 1 29 23 ·83 | 11 28 23 ·3 |
| 12 | 23 49 56 ·35 | 3 10 20 ·0 | 114 ·62 | 12 | 1 31 31 ·69 | 11 37 45 ·2 |
| 13 | 23 52 3 ·12 | 3 21 47 ·7 | 114 ·38 | 13 | 1 33 39 ·61 | 11 47 3 ·2 |
| 14 | 23 54 9 ·86 | 3 33 14 ·0 | 114 ·13 | 14 | 1 35 47 ·58 | 11 56 17 ·3 |
| 15 | 23 56 16 ·59 | 3 44 38 ·8 | 113 ·88 | 15 | 1 37 55 ·61 | 12 5 27 ·4 |
| 16 | 23 58 23 ·29 | 3 56 2 ·1 | 113 ·60 | 16 | 1 40 3 ·71 | 12 14 33 ·5 |
| 17 | 0 0 29 ·97 | 4 7 23 ·7 | 113 ·33 | 17 | 1 42 11 ·87 | 12 23 35 ·5 |
| 18 | 0 2 36 ·64 | 4 18 43 ·7 | 113 ·05 | 18 | 1 44 20 ·09 | 12 32 33 ·4 |
| 19 | 0 4 43 ·30 | 4 30 2 ·0 | 112 ·75 | 19 | 1 46 28 ·37 | 12 41 27 ·1 |
| 20 | 0 6 49 ·95 | 4 41 18 ·5 | 112 ·45 | 20 | 1 48 36 ·71 | 12 50 16 ·6 |
| 21 | 0 8 56 ·59 | 4 52 33 ·2 | 112 ·13 | 21 | 1 50 45 ·12 | 12 59 1 ·9 |
| 22 | 0 11 3 ·23 | 5 3 46 ·0 | 111 ·80 | 22 | 1 52 53 ·59 | 13 7 42 ·9 |
| 23 | 0 13 9 ·86 | N. 5 14 56 ·8 | 111 ·48 | 23 | 1 55 2 ·12 | N. 13 16 19 ·5 |
| | *MONDAY* 10. | | | | *WEDNESDAY* 12. | |
| 0 | 0 15 16 ·49 | N. 5 26 5 ·7 | 111 ·13 | 0 | 1 57 10 ·72 | N. 13 24 51 ·8 |
| 1 | 0 17 23 ·12 | 5 37 12 ·5 | 110 ·78 | 1 | 1 59 19 ·38 | 13 33 19 ·7 |
| 2 | 0 19 29 ·76 | 5 48 17 ·2 | 110 ·42 | 2 | 2 1 28 ·11 | 13 41 43 ·1 |
| 3 | 0 21 36 ·41 | 5 59 19 ·7 | 110 ·07 | 3 | 2 3 36 ·91 | 13 50 2 ·0 |
| 4 | 0 23 43 ·06 | 6 10 20 ·1 | 109 ·67 | 4 | 2 5 45 ·77 | 13 58 16 ·3 |
| 5 | 0 25 49 ·73 | 6 21 18 ·1 | 109 ·28 | 5 | 2 7 54 ·69 | 14 6 26 ·1 |
| 6 | 0 27 56 ·40 | 6 32 13 ·8 | 108 ·90 | 6 | 2 10 3 ·68 | 14 14 31 ·2 |
| 7 | 0 30 3 ·10 | 6 43 7 ·2 | 108 ·48 | 7 | 2 12 12 ·73 | 14 22 31 ·7 |
| 8 | 0 32 9 ·81 | 6 53 58 ·1 | 108 ·07 | 8 | 2 14 21 ·85 | 14 30 27 ·5 |
| 9 | 0 34 16 ·53 | 7 4 46 ·5 | 107 ·65 | 9 | 2 16 31 ·03 | 14 38 18 ·6 |
| 10 | 0 36 23 ·29 | 7 15 32 ·4 | 107 ·22 | 10 | 2 18 40 ·27 | 14 46 4 ·9 |
| 11 | 0 38 30 ·06 | 7 26 15 ·7 | 106 ·78 | 11 | 2 20 49 ·58 | 14 53 46 ·4 |
| 12 | 0 40 36 ·86 | 7 36 56 ·4 | 106 ·33 | 12 | 2 22 58 ·95 | 15 1 23 ·0 |
| 13 | 0 42 43 ·68 | 7 47 34 ·4 | 105 ·87 | 13 | 2 25 8 ·38 | 15 8 54 ·7 |
| 14 | 0 44 50 ·54 | 7 58 9 ·6 | 105 ·40 | 14 | 2 27 17 ·88 | 15 16 21 ·6 |
| 15 | 0 46 57 ·42 | 8 8 42 ·0 | 104 ·93 | 15 | 2 29 27 ·44 | 15 23 43 ·4 |
| 16 | 0 49 4 ·34 | 8 19 11 ·6 | 104 ·43 | 16 | 2 31 37 ·06 | 15 31 0 ·3 |
| 17 | 0 51 11 ·29 | 8 29 38 ·2 | 103 ·95 | 17 | 2 33 46 ·74 | 15 38 12 ·1 |
| 18 | 0 53 18 ·27 | 8 40 1 ·9 | 103 ·45 | 18 | 2 35 56 ·47 | 15 45 18 ·9 |
| 19 | 0 55 25 ·30 | 8 50 22 ·6 | 102 ·93 | 19 | 2 38 6 ·27 | 15 52 20 ·6 |
| 20 | 0 57 32 ·36 | 9 0 40 ·2 | 102 ·42 | 20 | 2 40 16 ·13 | 15 59 17 ·2 |
| 21 | 0 59 39 ·46 | 9 10 54 ·7 | 101 ·90 | 21 | 2 42 26 ·04 | 16 6 8 ·5 |
| 22 | 1 1 46 ·60 | 9 21 6 ·1 | 101 ·35 | 22 | 2 44 36 ·01 | 16 12 54 ·7 |
| 23 | 1 3 53 ·78 | 9 31 14 ·2 | 100 ·82 | 23 | 2 46 46 ·04 | 16 19 35 ·7 |
| 24 | 1 6 1 ·01 | N. 9 41 19 ·1 | | 24 | 2 48 56 ·12 | N. 16 26 11 ·4 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ght Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *THURSDAY* 13. | | | | *SATURDAY* 15. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 48 56·12 | N.16 26 11·4 | 65·07 | 0 | 4 33 34·54 | N.19 51 59·4 | 18·73 |
| 51 6·25 | 16 32 41·8 | 64·18 | 1 | 4 35 45·27 | 19 53 51·8 | 17·73 |
| 53 16·44 | 16 39 6·9 | 63·28 | 2 | 4 37 55·96 | 19 55 38·2 | 16·72 |
| 55 26·68 | 16 45 26·6 | 62·40 | 3 | 4 40 6·60 | 19 57 18·5 | 15·72 |
| 57 36·97 | 16 51 41·0 | 61·50 | 4 | 4 42 17·20 | 19 58 52·8 | 14·70 |
| 59 47·30 | 16 57 50·0 | 60·58 | 5 | 4 44 27·75 | 20 0 21·0 | 13·70 |
| 1 57·69 | 17 3 53·5 | 59·68 | 6 | 4 46 38·26 | 20 1 43·2 | 12·70 |
| 4 8·12 | 17 9 51·6 | 58·75 | 7 | 4 48 48·71 | 20 2 59·4 | 11·70 |
| 6 18·59 | 17 15 44·1 | 57·85 | 8 | 4 50 59·11 | 20 4 9·6 | 10·70 |
| 8 29·11 | 17 21 31·2 | 56·92 | 9 | 4 53 9·45 | 20 5 13·8 | 9·68 |
| 10 39·67 | 17 27 12·7 | 56·00 | 10 | 4 55 19·73 | 20 6 11·9 | 8·70 |
| 12 50·28 | 17 32 48·7 | 55·07 | 11 | 4 57 29·95 | 20 7 4·1 | 7·68 |
| 15 0·92 | 17 38 19·1 | 54·13 | 12 | 4 59 40·10 | 20 7 50·2 | 6·70 |
| 17 11·60 | 17 43 43·9 | 53·18 | 13 | 5 1 50·19 | 20 8 30·4 | 5·68 |
| 19 22·32 | 17 49 3·0 | 52·25 | 14 | 5 4 0·21 | 20 9 4·5 | 4·70 |
| 21 33·07 | 17 54 16·5 | 51·30 | 15 | 5 6 10·16 | 20 9 32·7 | 3·70 |
| 23 43·86 | 17 59 24·3 | 50·35 | 16 | 5 8 20·03 | 20 9 54·9 | 2·72 |
| 25 54·67 | 18 4 26·4 | 49·40 | 17 | 5 10 29·84 | 20 10 11·2 | 1·72 |
| 28 5·52 | 18 9 22·8 | 48·45 | 18 | 5 12 39·56 | 20 10 21·5 | 0·73 |
| 30 16·39 | 18 14 13·5 | 47·48 | 19 | 5 14 49·21 | 20 10 25·9 | 0·27 |
| 32 27·29 | 18 18 58·4 | 46·52 | 20 | 5 16 58·77 | 20 10 24·3 | 1·25 |
| 34 38·21 | 18 23 37·5 | 45·55 | 21 | 5 19 8·25 | 20 10 16·8 | 2·23 |
| 36 49·15 | 18 28 10·8 | 44·58 | 22 | 5 21 17·64 | 20 10 3·4 | 3·20 |
| 39 0·12 | N.18 32 38·3 | 43·62 | 23 | 5 23 26·95 | N.20 9 44·2 | 4·20 |
| *FRIDAY* 14. | | | | *SUNDAY* 16. | | |
| 41 11·10 | N.18 37 0·0 | 42·63 | 0 | 5 25 36·17 | N.20 9 19·0 | 5·17 |
| 43 22·10 | 18 41 15·8 | 41·67 | 1 | 5 27 45·30 | 20 8 48·0 | 6·15 |
| 45 33·11 | 18 45 25·8 | 40·68 | 2 | 5 29 54·33 | 20 8 11·1 | 7·12 |
| 47 44·13 | 18 49 29·9 | 39·70 | 3 | 5 32 3·26 | 20 7 28·4 | 8·10 |
| 49 55·16 | 18 53 28·1 | 38·72 | 4 | 5 34 12·09 | 20 6 39·8 | 9·05 |
| 52 6·21 | 18 57 20·4 | 37·73 | 5 | 5 36 20·83 | 20 5 45·5 | 10·03 |
| 54 17·25 | 19 1 6·8 | 36·75 | 6 | 5 38 29·46 | 20 4 45·3 | 10·98 |
| 56 28·30 | 19 4 47·3 | 35·75 | 7 | 5 40 37·99 | 20 3 39·4 | 11·95 |
| 58 39·35 | 19 8 21·8 | 34·77 | 8 | 5 42 46·41 | 20 2 27·7 | 12·90 |
| 0 50·40 | 19 11 50·4 | 33·77 | 9 | 5 44 54·73 | 20 1 10·3 | 13·85 |
| 3 1·45 | 19 15 13·0 | 32·77 | 10 | 5 47 2·94 | 19 59 47·2 | 14·82 |
| 5 12·49 | 19 18 29·6 | 31·78 | 11 | 5 49 11·03 | 19 58 18·3 | 15·75 |
| 7 23·53 | 19 21 40·3 | 30·78 | 12 | 5 51 19·01 | 19 56 43·8 | 16·70 |
| 9 34·56 | 19 24 45·0 | 29·77 | 13 | 5 53 26·88 | 19 55 3·6 | 17·63 |
| 11 45·57 | 19 27 43·6 | 28·78 | 14 | 5 55 34·63 | 19 53 17·8 | 18·58 |
| 13 56·57 | 19 30 36·3 | 27·78 | 15 | 5 57 42·26 | 19 51 26·3 | 19·52 |
| 16 7·55 | 19 33 23·0 | 26·77 | 16 | 5 59 49·77 | 19 49 29·2 | 20·43 |
| 18 18·52 | 19 36 3·6 | 25·78 | 17 | 6 1 57·16 | 19 47 26·6 | 21·37 |
| 20 29·46 | 19 38 38·3 | 24·77 | 18 | 6 4 4·43 | 19 45 18·4 | 22·30 |
| 22 40·38 | 19 41 6·9 | 23·75 | 19 | 6 6 11·58 | 19 43 4·6 | 23·22 |
| 24 51·27 | 19 43 29·4 | 22·77 | 20 | 6 8 18·60 | 19 40 45·3 | 24·13 |
| 27 2·14 | 19 45 46·0 | 21·75 | 21 | 6 10 25·49 | 19 38 20·5 | 25·03 |
| 29 12·97 | 19 47 56·5 | 20·75 | 22 | 6 12 32·26 | 19 35 50·3 | 25·97 |
| 31 23·77 | 19 50 1·0 | 19·73 | 23 | 6 14 38·89 | 19 33 14·5 | 26·85 |
| 33 34·54 | N.19 51 59·4 | | 24 | 6 16 45·40 | N.19 30 33·4 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 16 45 ·40 | N.19 30 33 ·4 | 27 ·77 |
| 1 | 6 18 51 ·77 | 19 27 46 ·8 | 28 ·65 |
| 2 | 6 20 58 ·01 | 19 24 54 ·9 | 29 ·55 |
| 3 | 6 23 4 ·12 | 19 21 57 ·6 | 30 ·43 |
| 4 | 6 25 10 ·09 | 19 18 55 ·0 | 31 ·33 |
| 5 | 6 27 15 ·93 | 19 15 47 ·0 | 32 ·20 |
| 6 | 6 29 21 ·63 | 19 12 33 ·8 | 33 ·08 |
| 7 | 6 31 27 ·19 | 19 9 15 ·3 | 33 ·95 |
| 8 | 6 33 32 ·62 | 19 5 51 ·6 | 34 ·83 |
| 9 | 6 35 37 ·90 | 19 2 22 ·6 | 35 ·68 |
| 10 | 6 37 43 ·04 | 18 58 48 ·5 | 36 ·55 |
| 11 | 6 39 48 ·05 | 18 55 9 ·2 | 37 ·40 |
| 12 | 6 41 52 ·91 | 18 51 24 ·8 | 38 ·25 |
| 13 | 6 43 57 ·63 | 18 47 35 ·3 | 39 ·10 |
| 14 | 6 46 2 ·21 | 18 43 40 ·7 | 39 ·95 |
| 15 | 6 48 6 ·64 | 18 39 41 ·0 | 40 ·77 |
| 16 | 6 50 10 ·93 | 18 35 36 ·4 | 41 ·62 |
| 17 | 6 52 15 ·07 | 18 31 26 ·7 | 42 ·43 |
| 18 | 6 54 19 ·07 | 18 27 12 ·1 | 43 ·27 |
| 19 | 6 56 22 ·92 | 18 22 52 ·5 | 44 ·07 |
| 20 | 6 58 26 ·63 | 18 18 28 ·1 | 44 ·90 |
| 21 | 7 0 30 ·20 | 18 13 58 ·7 | 45 ·70 |
| 22 | 7 2 33 ·61 | 18 9 24 ·5 | 46 ·52 |
| 23 | 7 4 36 ·88 | N.18 4 45 ·4 | 47 ·30 |
| | *TUESDAY* 18. | | |
| 0 | 7 6 40 ·00 | N.18 0 1 ·6 | 48 ·10 |
| 1 | 7 8 42 ·97 | 17 55 13 ·0 | 48 ·88 |
| 2 | 7 10 45 ·80 | 17 50 19 ·7 | 49 ·68 |
| 3 | 7 12 48 ·49 | 17 45 21 ·6 | 50 ·45 |
| 4 | 7 14 51 ·03 | 17 40 18 ·9 | 51 ·23 |
| 5 | 7 16 53 ·42 | 17 35 11 ·5 | 52 ·00 |
| 6 | 7 18 55 ·67 | 17 29 59 ·5 | 52 ·78 |
| 7 | 7 20 57 ·77 | 17 24 42 ·8 | 53 ·52 |
| 8 | 7 22 59 ·73 | 17 19 21 ·7 | 54 ·28 |
| 9 | 7 25 1 ·54 | 17 13 56 ·0 | 55 ·05 |
| 10 | 7 27 3 ·21 | 17 8 25 ·7 | 55 ·77 |
| 11 | 7 29 4 ·73 | 17 2 51 ·1 | 56 ·53 |
| 12 | 7 31 6 ·11 | 16 57 11 ·9 | 57 ·27 |
| 13 | 7 33 7 ·34 | 16 51 28 ·3 | 57 ·98 |
| 14 | 7 35 8 ·44 | 16 45 40 ·4 | 58 ·72 |
| 15 | 7 37 9 ·39 | 16 39 48 ·1 | 59 ·45 |
| 16 | 7 39 10 ·20 | 16 33 51 ·4 | 60 ·15 |
| 17 | 7 41 10 ·86 | 16 27 50 ·5 | 60 ·87 |
| 18 | 7 43 11 ·39 | 16 21 45 ·3 | 61 ·57 |
| 19 | 7 45 11 ·78 | 16 15 35 ·9 | 62 ·27 |
| 20 | 7 47 12 ·03 | 16 9 22 ·3 | 62 ·97 |
| 21 | 7 49 12 ·14 | 16 3 4 ·5 | 63 ·67 |
| 22 | 7 51 12 ·12 | 15 56 42 ·5 | 64 ·35 |
| 23 | 7 53 11 ·96 | 15 50 16 ·4 | 65 ·02 |
| 24 | 7 55 11 ·66 | N.15 43 46 ·3 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *WEDNESDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 7 55 11 ·66 | N.15 43 46 · |
| 1 | 7 57 11 ·23 | 15 37 12 · |
| 2 | 7 59 10 ·67 | 15 30 33 · |
| 3 | 8 1 9 ·98 | 15 23 51 · |
| 4 | 8 3 9 ·16 | 15 17 5 · |
| 5 | 8 5 8 ·21 | 15 10 15 · |
| 6 | 8 7 7 ·13 | 15 3 21 · |
| 7 | 8 9 5 ·92 | 14 56 23 · |
| 8 | 8 11 4 ·59 | 14 49 21 · |
| 9 | 8 13 3 ·13 | 14 42 16 · |
| 10 | 8 15 1 ·55 | 14 35 7 · |
| 11 | 8 16 59 ·85 | 14 27 54 · |
| 12 | 8 18 58 ·03 | 14 20 37 · |
| 13 | 8 20 56 ·09 | 14 13 16 · |
| 14 | 8 22 54 ·04 | 14 5 52 · |
| 15 | 8 24 51 ·87 | 13 58 24 · |
| 16 | 8 26 49 ·59 | 13 50 53 · |
| 17 | 8 28 47 ·19 | 13 43 18 · |
| 18 | 8 30 44 ·69 | 13 35 40 · |
| 19 | 8 32 42 ·07 | 13 27 58 · |
| 20 | 8 34 39 ·36 | 13 20 12 · |
| 21 | 8 36 36 ·53 | 13 12 23 · |
| 22 | 8 38 33 ·60 | 13 4 31 · |
| 23 | 8 40 30 ·58 | N.12 56 35 · |
| | *THURSDAY* 20. | |
| 0 | 8 42 27 ·45 | N.12 48 36 · |
| 1 | 8 44 24 ·23 | 12 40 34 · |
| 2 | 8 46 20 ·91 | 12 32 28 · |
| 3 | 8 48 17 ·50 | 12 24 19 · |
| 4 | 8 50 13 ·99 | 12 16 7 · |
| 5 | 8 52 10 ·40 | 12 7 52 · |
| 6 | 8 54 6 ·72 | 11 59 33 · |
| 7 | 8 56 2 ·95 | 11 51 11 · |
| 8 | 8 57 59 ·10 | 11 42 47 · |
| 9 | 8 59 55 ·18 | 11 34 19 · |
| 10 | 9 1 51 ·17 | 11 25 48 · |
| 11 | 9 3 47 ·09 | 11 17 14 · |
| 12 | 9 5 42 ·93 | 11 8 37 · |
| 13 | 9 7 38 ·70 | 10 59 57 · |
| 14 | 9 9 34 ·40 | 10 51 14 · |
| 15 | 9 11 30 ·04 | 10 42 28 · |
| 16 | 9 13 25 ·61 | 10 33 39 · |
| 17 | 9 15 21 ·12 | 10 24 48 · |
| 18 | 9 17 16 ·57 | 10 15 53 · |
| 19 | 9 19 11 ·96 | 10 6 56 · |
| 20 | 9 21 7 ·30 | 9 57 56 · |
| 21 | 9 23 2 ·58 | 9 48 54 · |
| 22 | 9 24 57 ·82 | 9 39 49 · |
| 23 | 9 26 53 ·01 | 9 30 41 · |
| 24 | 9 28 48 ·16 | N. 9 21 30 · |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 21. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 9 28 48 ·16 | N.9 21 30 ·4 | 92 ·20 |
| 1 | 9 30 43 ·27 | 9 12 17 ·2 | 92 ·63 |
| 2 | 9 32 38 ·33 | 9 3 1 ·4 | 93 ·05 |
| 3 | 9 34 33 ·36 | 8 53 43 ·1 | 93 ·48 |
| 4 | 9 36 28 ·36 | 8 44 22 ·2 | 93 ·88 |
| 5 | 9 38 23 ·33 | 8 34 58 ·9 | 94 ·30 |
| 6 | 9 40 18 ·27 | 8 25 33 ·1 | 94 ·70 |
| 7 | 9 42 13 ·18 | 8 16 4 ·9 | 95 ·10 |
| 8 | 9 44 8 ·07 | 8 6 34 ·3 | 95 ·50 |
| 9 | 9 46 2 ·95 | 7 57 1 ·3 | 95 ·88 |
| 10 | 9 47 57 ·80 | 7 47 26 ·0 | 96 ·27 |
| 11 | 9 49 52 ·64 | 7 37 48 ·4 | 96 ·65 |
| 12 | 9 51 47 ·47 | 7 28 8 ·5 | 97 ·02 |
| 13 | 9 53 42 ·29 | 7 18 26 ·4 | 97 ·40 |
| 14 | 9 55 37 ·10 | 7 8 42 ·0 | 97 ·75 |
| 15 | 9 57 31 ·92 | 6 58 55 ·5 | 98 ·12 |
| 16 | 9 59 26 ·73 | 6 49 6 ·8 | 98 ·47 |
| 17 | 10 1 21 ·55 | 6 39 16 ·0 | 98 ·80 |
| 18 | 10 3 16 ·37 | 6 29 23 ·2 | 99 ·17 |
| 19 | 10 5 11 ·20 | 6 19 28 ·2 | 99 ·48 |
| 20 | 10 7 6 ·04 | 6 9 31 ·3 | 99 ·83 |
| 21 | 10 9 0 ·91 | 5 59 32 ·3 | 100 ·15 |
| 22 | 10 10 55 ·79 | 5 49 31 ·4 | 100 ·47 |
| 23 | 10 12 50 ·69 | N.5 39 28 ·6 | 100 ·78 |
| | *SATURDAY* 22. | | |
| 0 | 10 14 45 ·61 | N.5 29 23 ·9 | 101 ·10 |
| 1 | 10 16 40 ·57 | 5 19 17 ·3 | 101 ·40 |
| 2 | 10 18 35 ·55 | 5 9 8 ·9 | 101 ·70 |
| 3 | 10 20 30 ·57 | 4 58 58 ·7 | 101 ·98 |
| 4 | 10 22 25 ·63 | 4 48 46 ·8 | 102 ·28 |
| 5 | 10 24 20 ·73 | 4 38 33 ·1 | 102 ·57 |
| 6 | 10 26 15 ·87 | 4 28 17 ·7 | 102 ·85 |
| 7 | 10 28 11 ·06 | 4 18 0 ·6 | 103 ·12 |
| 8 | 10 30 6 ·30 | 4 7 41 ·9 | 103 ·38 |
| 9 | 10 32 1 ·59 | 3 57 21 ·6 | 103 ·63 |
| 10 | 10 33 56 ·94 | 3 46 59 ·8 | 103 ·90 |
| 11 | 10 35 52 ·35 | 3 36 36 ·4 | 104 ·15 |
| 12 | 10 37 47 ·83 | 3 26 11 ·5 | 104 ·40 |
| 13 | 10 39 43 ·37 | 3 15 45 ·1 | 104 ·62 |
| 14 | 10 41 38 ·99 | 3 5 17 ·4 | 104 ·87 |
| 15 | 10 43 34 ·67 | 2 54 48 ·2 | 105 ·10 |
| 16 | 10 45 30 ·43 | 2 44 17 ·6 | 105 ·30 |
| 17 | 10 47 26 ·27 | 2 33 45 ·8 | 105 ·53 |
| 18 | 10 49 22 ·20 | 2 23 12 ·6 | 105 ·73 |
| 19 | 10 51 18 ·21 | 2 12 38 ·2 | 105 ·93 |
| 20 | 10 53 14 ·31 | 2 2 2 ·6 | 106 ·13 |
| 21 | 10 55 10 ·51 | 1 51 25 ·8 | 106 ·32 |
| 22 | 10 57 6 ·80 | 1 40 47 ·9 | 106 ·50 |
| 23 | 10 59 3 ·19 | 1 30 8 ·9 | 106 ·68 |
| 24 | 11 0 59 ·69 | N.1 19 28 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 23. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 11 0 59 ·69 | N.1 19 28 ·8 | 106 ·85 |
| 1 | 11 2 56 ·30 | 1 8 47 ·7 | 107 ·02 |
| 2 | 11 4 53 ·01 | 0 58 5 ·6 | 107 ·18 |
| 3 | 11 6 49 ·84 | 0 47 22 ·5 | 107 ·32 |
| 4 | 11 8 46 ·79 | 0 36 38 ·6 | 107 ·47 |
| 5 | 11 10 43 ·86 | 0 25 53 ·8 | 107 ·62 |
| 6 | 11 12 41 ·05 | 0 15 8 ·1 | 107 ·75 |
| 7 | 11 14 38 ·37 | N.0 4 21 ·6 | 107 ·87 |
| 8 | 11 16 35 ·83 | S.0 6 25 ·6 | 107 ·98 |
| 9 | 11 18 33 ·41 | 0 17 13 ·5 | 108 ·10 |
| 10 | 11 20 31 ·14 | 0 28 2 ·1 | 108 ·20 |
| 11 | 11 22 29 ·01 | 0 38 51 ·3 | 108 ·30 |
| 12 | 11 24 27 ·03 | 0 49 41 ·1 | 108 ·38 |
| 13 | 11 26 25 ·20 | 1 0 31 ·4 | 108 ·48 |
| 14 | 11 28 23 ·52 | 1 11 22 ·3 | 108 ·55 |
| 15 | 11 30 21 ·99 | 1 22 13 ·6 | 108 ·62 |
| 16 | 11 32 20 ·63 | 1 33 5 ·3 | 108 ·68 |
| 17 | 11 34 19 ·42 | 1 43 57 ·4 | 108 ·75 |
| 18 | 11 36 18 ·39 | 1 54 49 ·9 | 108 ·78 |
| 19 | 11 38 17 ·53 | 2 5 42 ·6 | 108 ·82 |
| 20 | 11 40 16 ·84 | 2 16 35 ·5 | 108 ·87 |
| 21 | 11 42 16 ·33 | 2 27 28 ·7 | 108 ·88 |
| 22 | 11 44 16 ·00 | 2 38 22 ·0 | 108 ·90 |
| 23 | 11 46 15 ·86 | S.2 49 15 ·4 | 108 ·90 |
| | *MONDAY* 24. | | |
| 0 | 11 48 15 ·90 | S.3 0 8 ·8 | 108 ·92 |
| 1 | 11 50 16 ·14 | 3 11 2 ·3 | 108 ·90 |
| 2 | 11 52 16 ·56 | 3 21 55 ·7 | 108 ·88 |
| 3 | 11 54 17 ·19 | 3 32 49 ·0 | 108 ·87 |
| 4 | 11 56 18 ·02 | 3 43 42 ·2 | 108 ·82 |
| 5 | 11 58 19 ·06 | 3 54 35 ·1 | 108 ·80 |
| 6 | 12 0 20 ·30 | 4 5 27 ·9 | 108 ·73 |
| 7 | 12 2 21 ·76 | 4 16 20 ·3 | 108 ·70 |
| 8 | 12 4 23 ·43 | 4 27 12 ·5 | 108 ·62 |
| 9 | 12 6 25 ·32 | 4 38 4 ·2 | 108 ·55 |
| 10 | 12 8 27 ·44 | 4 48 55 ·5 | 108 ·45 |
| 11 | 12 10 29 ·78 | 4 59 46 ·2 | 108 ·38 |
| 12 | 12 12 32 ·35 | 5 10 36 ·5 | 108 ·27 |
| 13 | 12 14 35 ·15 | 5 21 26 ·1 | 108 ·17 |
| 14 | 12 16 38 ·20 | 5 32 15 ·1 | 108 ·03 |
| 15 | 12 18 41 ·48 | 5 43 3 ·3 | 107 ·92 |
| 16 | 12 20 45 ·00 | 5 53 50 ·8 | 107 ·78 |
| 17 | 12 22 48 ·77 | 6 4 37 ·5 | 107 ·62 |
| 18 | 12 24 52 ·80 | 6 15 23 ·2 | 107 ·48 |
| 19 | 12 26 57 ·07 | 6 26 8 ·1 | 107 ·30 |
| 20 | 12 29 1 ·61 | 6 36 51 ·9 | 107 ·12 |
| 21 | 12 31 6 ·40 | 6 47 34 ·6 | 106 ·95 |
| 22 | 12 33 11 ·46 | 6 58 16 ·3 | 106 ·75 |
| 23 | 12 35 16 ·78 | 7 8 56 ·8 | 106 ·53 |
| 24 | 12 37 22 ·37 | S.7 19 36 ·0 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 12 37 22 ·37 | S. 7 19 36 ·0 | 106 ·32 |
| 1 | 12 39 28 ·23 | 7 30 13 ·9 | 106 ·10 |
| 2 | 12 41 34 ·37 | 7 40 50 ·5 | 105 ·85 |
| 3 | 12 43 40 ·79 | 7 51 25 ·6 | 105 ·62 |
| 4 | 12 45 47 ·49 | 8 1 59 ·3 | 105 ·35 |
| 5 | 12 47 54 ·48 | 8 12 31 ·4 | 105 ·08 |
| 6 | 12 50 1 ·75 | 8 23 1 ·9 | 104 ·80 |
| 7 | 12 52 9 ·32 | 8 33 30 ·7 | 104 ·52 |
| 8 | 12 54 17 ·18 | 8 43 57 ·8 | 104 ·20 |
| 9 | 12 56 25 ·34 | 8 54 23 ·0 | 103 ·90 |
| 10 | 12 58 33 ·79 | 9 4 46 ·4 | 103 ·58 |
| 11 | 13 0 42 ·55 | 9 15 7 ·9 | 103 ·23 |
| 12 | 13 2 51 ·61 | 9 25 27 ·3 | 102 ·90 |
| 13 | 13 5 0 ·98 | 9 35 44 ·7 | 102 ·53 |
| 14 | 13 7 10 ·66 | 9 45 59 ·9 | 102 ·17 |
| 15 | 13 9 20 ·66 | 9 56 12 ·9 | 101 ·78 |
| 16 | 13 11 30 ·97 | 10 6 23 ·6 | 101 ·38 |
| 17 | 13 13 41 ·60 | 10 16 31 ·9 | 100 ·98 |
| 18 | 13 15 52 ·55 | 10 26 37 ·8 | 100 ·58 |
| 19 | 13 18 3 ·82 | 10 36 41 ·3 | 100 ·13 |
| 20 | 13 20 15 ·42 | 10 46 42 ·1 | 99 ·70 |
| 21 | 13 22 27 ·34 | 10 56 40 ·3 | 99 ·25 |
| 22 | 13 24 39 ·59 | 11 6 35 ·8 | 98 ·78 |
| 23 | 13 26 52 ·17 | S. 11 16 28 ·5 | 98 ·30 |
| | *WEDNESDAY* 26. | | |
| 0 | 13 29 5 ·09 | S. 11 26 18 ·3 | 97 ·82 |
| 1 | 13 31 18 ·34 | 11 36 5 ·2 | 97 ·32 |
| 2 | 13 33 31 ·94 | 11 45 49 ·1 | 96 ·78 |
| 3 | 13 35 45 ·87 | 11 55 29 ·8 | 96 ·27 |
| 4 | 13 38 0 ·14 | 12 5 7 ·4 | 95 ·73 |
| 5 | 13 40 14 ·76 | 12 14 41 ·8 | 95 ·17 |
| 6 | 13 42 29 ·72 | 12 24 12 ·8 | 94 ·60 |
| 7 | 13 44 45 ·03 | 12 33 40 ·4 | 94 ·03 |
| 8 | 13 47 0 ·69 | 12 43 4 ·6 | 93 ·43 |
| 9 | 13 49 16 ·69 | 12 52 25 ·2 | 92 ·82 |
| 10 | 13 51 33 ·05 | 13 1 42 ·1 | 92 ·20 |
| 11 | 13 53 49 ·76 | 13 10 55 ·3 | 91 ·58 |
| 12 | 13 56 6 ·82 | 13 20 4 ·8 | 90 ·93 |
| 13 | 13 58 24 ·23 | 13 29 10 ·4 | 90 ·27 |
| 14 | 14 0 42 ·00 | 13 38 12 ·0 | 89 ·58 |
| 15 | 14 3 0 ·13 | 13 47 9 ·5 | 88 ·92 |
| 16 | 14 5 18 ·61 | 13 56 3 ·0 | 88 ·20 |
| 17 | 14 7 37 ·45 | 14 4 52 ·2 | 87 ·50 |
| 18 | 14 9 56 ·65 | 14 13 37 ·2 | 86 ·77 |
| 19 | 14 12 16 ·21 | 14 22 17 ·8 | 86 ·02 |
| 20 | 14 14 36 ·12 | 14 30 53 ·9 | 85 ·27 |
| 21 | 14 16 56 ·39 | 14 39 25 ·5 | 84 ·50 |
| 22 | 14 19 17 ·03 | 14 47 52 ·5 | 83 ·72 |
| 23 | 14 21 38 ·02 | 14 56 14 ·8 | 82 ·92 |
| 24 | 14 23 59 ·37 | S. 15 4 32 ·3 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *THURSDAY* 27. | |
| | h m s | ° ′ ″ |
| 0 | 14 23 59 ·37 | S. 15 4 32 ·3 |
| 1 | 14 26 21 ·08 | 15 12 44 ·9 |
| 2 | 14 28 43 ·15 | 15 20 52 ·6 |
| 3 | 14 31 5 ·58 | 15 28 55 ·3 |
| 4 | 14 33 28 ·36 | 15 36 52 ·9 |
| 5 | 14 35 51 ·50 | 15 44 45 ·2 |
| 6 | 14 38 15 ·00 | 15 52 32 ·3 |
| 7 | 14 40 38 ·86 | 16 0 14 ·0 |
| 8 | 14 43 3 ·06 | 16 7 50 ·2 |
| 9 | 14 45 27 ·62 | 16 15 20 ·9 |
| 10 | 14 47 52 ·53 | 16 22 46 ·0 |
| 11 | 14 50 17 ·79 | 16 30 5 ·5 |
| 12 | 14 52 43 ·40 | 16 37 19 ·1 |
| 13 | 14 55 9 ·36 | 16 44 26 ·9 |
| 14 | 14 57 35 ·66 | 16 51 28 ·7 |
| 15 | 15 0 2 ·30 | 16 58 24 ·6 |
| 16 | 15 2 29 ·28 | 17 5 14 ·3 |
| 17 | 15 4 56 ·60 | 17 11 57 ·8 |
| 18 | 15 7 24 ·26 | 17 18 35 ·1 |
| 19 | 15 9 52 ·25 | 17 25 6 ·0 |
| 20 | 15 12 20 ·57 | 17 31 30 ·5 |
| 21 | 15 14 49 ·22 | 17 37 48 ·5 |
| 22 | 15 17 18 ·19 | 17 44 0 ·0 |
| 23 | 15 19 47 ·49 | S. 17 50 4 ·7 |
| | *FRIDAY* 28. | |
| 0 | 15 22 17 ·10 | S. 17 56 2 ·8 |
| 1 | 15 24 47 ·03 | 18 1 54 ·0 |
| 2 | 15 27 17 ·27 | 18 7 38 ·4 |
| 3 | 15 29 47 ·82 | 18 13 15 ·8 |
| 4 | 15 32 18 ·67 | 18 18 46 ·2 |
| 5 | 15 34 49 ·82 | 18 24 9 ·5 |
| 6 | 15 37 21 ·27 | 18 29 25 ·5 |
| 7 | 15 39 53 ·01 | 18 34 34 ·4 |
| 8 | 15 42 25 ·04 | 18 39 35 ·9 |
| 9 | 15 44 57 ·35 | 18 44 30 ·1 |
| 10 | 15 47 29 ·94 | 18 49 16 ·8 |
| 11 | 15 50 2 ·80 | 18 53 56 ·0 |
| 12 | 15 52 35 ·93 | 18 58 27 ·6 |
| 13 | 15 55 9 ·32 | 19 2 51 ·6 |
| 14 | 15 57 42 ·98 | 19 7 7 ·8 |
| 15 | 16 0 16 ·88 | 19 11 16 ·3 |
| 16 | 16 2 51 ·03 | 19 15 16 ·9 |
| 17 | 16 5 25 ·43 | 19 19 9 ·7 |
| 18 | 16 8 0 ·06 | 19 22 54 ·5 |
| 19 | 16 10 34 ·92 | 19 26 31 ·3 |
| 20 | 16 13 10 ·00 | 19 30 0 ·0 |
| 21 | 16 15 45 ·31 | 19 33 20 ·7 |
| 22 | 16 18 20 ·82 | 19 36 33 ·1 |
| 23 | 16 20 56 ·55 | 19 39 37 ·4 |
| 24 | 16 23 32 ·47 | S. 19 42 33 ·4 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. | Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|---|---|---|---|
| | *SATURDAY* 29. | | | | *SUNDAY* 30. | | |
| | h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 0 | 16 23 32 ·47 | S. 19 42 33 ·4 | 27 ·95 | 0 | 17 26 36 ·52 | S. 20 10 3 ·2 | 6 ·85 |
| 1 | 16 26 8 ·59 | 19 45 21 ·1 | 26 ·55 | 1 | 17 29 15 ·14 | 20 9 22 ·1 | 8 ·33 |
| 2 | 16 28 44 ·89 | 19 48 0 ·4 | 25 ·17 | 2 | 17 31 53 ·76 | 20 8 32 ·1 | 9 ·80 |
| 3 | 16 31 21 ·38 | 19 50 31 ·4 | 23 ·75 | 3 | 17 34 32 ·38 | 20 7 33 ·3 | 11 ·28 |
| 4 | 16 33 58 ·03 | 19 52 53 ·9 | 22 ·33 | 4 | 17 37 11 ·00 | 20 6 25 ·6 | 12 ·75 |
| 5 | 16 36 34 ·86 | 19 55 7 ·9 | 20 ·92 | 5 | 17 39 49 ·61 | 20 5 9 ·1 | 14 ·25 |
| 6 | 16 39 11 ·84 | 19 57 13 ·4 | 19 ·48 | 6 | 17 42 28 ·20 | 20 3 43 ·6 | 15 ·70 |
| 7 | 16 41 48 ·98 | 19 59 10 ·3 | 18 ·07 | 7 | 17 45 6 ·75 | 20 2 9 ·4 | 17 ·18 |
| 8 | 16 44 26 ·26 | 20 0 58 ·7 | 16 ·62 | 8 | 17 47 45 ·27 | 20 0 26 ·3 | 18 ·65 |
| 9 | 16 47 3 ·68 | 20 2 38 ·4 | 15 ·18 | 9 | 17 50 23 ·75 | 19 58 34 ·4 | 20 ·10 |
| 10 | 16 49 41 ·23 | 20 4 9 ·5 | 13 ·73 | 10 | 17 53 2 ·18 | 19 56 33 ·8 | 21 ·58 |
| 11 | 16 52 18 ·90 | 20 5 31 ·9 | 12 ·28 | 11 | 17 55 40 ·55 | 19 54 24 ·3 | 23 ·03 |
| 12 | 16 54 56 ·69 | 20 6 45 ·6 | 10 ·82 | 12 | 17 58 18 ·85 | 19 52 6 ·1 | 24 ·50 |
| 13 | 16 57 34 ·59 | 20 7 50 ·5 | 9 ·37 | 13 | 18 0 57 ·08 | 19 49 39 ·1 | 25 ·93 |
| 14 | 17 0 12 ·59 | 20 8 46 ·7 | 7 ·90 | 14 | 18 3 35 ·23 | 19 47 3 ·5 | 27 ·40 |
| 15 | 17 2 50 ·69 | 20 9 34 ·1 | 6 ·43 | 15 | 18 6 13 ·29 | 19 44 19 ·1 | 28 ·82 |
| 16 | 17 5 28 ·87 | 20 10 12 ·7 | 4 ·97 | 16 | 18 8 51 ·25 | 19 41 26 ·2 | 30 ·27 |
| 17 | 17 8 7 ·13 | 20 10 42 ·5 | 3 ·48 | 17 | 18 11 29 ·12 | 19 38 24 ·6 | 31 ·70 |
| 18 | 17 10 45 ·46 | 20 11 3 ·4 | 2 ·03 | 18 | 18 14 6 ·87 | 19 35 14 ·4 | 33 ·12 |
| 19 | 17 13 23 ·86 | 20 11 15 ·6 | 0 ·53 | 19 | 18 16 44 ·51 | 19 31 55 ·7 | 34 ·55 |
| 20 | 17 16 2 ·31 | 20 11 18 ·8 | 0 ·93 | 20 | 18 19 22 ·03 | 19 28 28 ·4 | 35 ·95 |
| 21 | 17 18 40 ·80 | 20 11 13 ·2 | 2 ·40 | 21 | 18 21 59 ·42 | 19 24 52 ·7 | 37 ·35 |
| 22 | 17 21 19 ·34 | 20 10 58 ·8 | 3 ·90 | 22 | 18 24 36 ·67 | 19 21 8 ·6 | 38 ·75 |
| 23 | 17 23 57 ·92 | 20 10 35 ·4 | 5 ·37 | 23 | 18 27 13 ·78 | 19 17 16 ·1 | 40 ·15 |
| 24 | 17 26 36 ·52 | S. 20 10 3 ·2 | | 24 | 18 29 50 ·74 | S. 19 13 15 ·2 | |

### PHASES OF THE MOON.

| | d h m |
|---|---|
| ☽ *First Quarter* | 6 6 14 ·6 |
| ○ Full Moon | 13 12 55 ·0 |
| ☾ *Last Quarter* | 21 16 26 ·0 |
| ● New Moon | 28 23 41 ·3 |

| | d h |
|---|---|
| ☾ Perigee | 2 21 |
| ☾ Apogee | 18 21 |
| ☾ Perigee | 30 18 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 2 | Sun W. | 33 15 14 | 2522 | 34 55 57 | 2520 | 36 36 43 | 2518 | 38 17 3 |
| | Saturn E. | 59 29 27 | 2254 | 57 42 20 | 2254 | 55 55 13 | 2255 | 54 8 |
| | Mars E. | 79 32 28 | 2385 | 77 48 32 | 2385 | 76 4 35 | 2383 | 74 20 3 |
| | Fomalhaut E. | 80 12 50 | 2699 | 78 36 8 | 2704 | 76 59 33 | 2709 | 75 23 |
| | α Pegasi E. | 96 56 22 | 2362 | 95 11 52 | 2360 | 93 27 19 | 2358 | 91 42 44 |
| 3 | Sun W. | 46 41 37 | 2519 | 48 22 24 | 2521 | 50 3 8 | 2522 | 51 43 50 |
| | Saturn E. | 45 13 23 | 2272 | 43 26 42 | 2277 | 41 40 9 | 2283 | 39 53 45 |
| | Mars E. | 65 40 55 | 2390 | 63 57 7 | 2393 | 62 13 22 | 2396 | 60 29 42 |
| | Fomalhaut E. | 67 24 1 | 2780 | 65 49 7 | 2798 | 64 14 36 | 2817 | 62 40 30 |
| | α Pegasi E. | 82 59 43 | 2361 | 81 15 13 | 2365 | 79 30 48 | 2368 | 77 46 27 |
| 4 | Sun W. | 60 6 19 | 2541 | 61 46 35 | 2546 | 63 26 44 | 2550 | 65 6 48 |
| | Venus W. | 18 45 10 | 2781 | 20 20 3 | 2758 | 21 55 26 | 2742 | 23 31 10 |
| | Mars E. | 51 52 59 | 2427 | 50 10 3 | 2434 | 48 27 17 | 2441 | 46 44 41 |
| | Fomalhaut E. | 54 58 21 | 2992 | 53 27 58 | 3033 | 51 58 26 | 3078 | 50 29 49 |
| | α Pegasi E. | 69 6 39 | 2405 | 67 23 11 | 2414 | 65 39 56 | 2422 | 63 56 53 |
| | Jupiter E. | 112 59 50 | 2193 | 111 11 12 | 2196 | 109 22 39 | 2201 | 107 34 13 |
| 5 | Sun W. | 73 25 19 | 2582 | 75 4 39 | 2588 | 76 43 51 | 2594 | 78 22 54 |
| | Venus W. | 31 32 30 | 2709 | 33 8 58 | 2709 | 34 45 26 | 2710 | 36 21 52 |
| | Mars E. | 38 14 53 | 2502 | 36 33 42 | 2514 | 34 52 48 | 2529 | 33 12 15 |
| | Fomalhaut E. | 43 23 38 | 3464 | 42 2 34 | 3557 | 40 43 13 | 3660 | 39 25 43 |
| | α Pegasi E. | 55 25 44 | 2498 | 53 44 28 | 2514 | 52 3 35 | 2532 | 50 23 6 |
| | Jupiter E. | 98 33 44 | 2230 | 96 46 1 | 2235 | 94 58 26 | 2241 | 93 10 59 |
| 6 | Sun W. | 86 35 56 | 2634 | 88 14 5 | 2641 | 89 52 5 | 2648 | 91 29 55 |
| | Venus W. | 44 23 5 | 2732 | 45 59 2 | 2736 | 47 34 54 | 2742 | 49 10 38 |
| | Mars E. | 24 55 58 | 2662 | 23 18 27 | 2698 | 21 41 44 | 2740 | 20 5 57 |
| | α Pegasi E. | 42 8 13 | 2678 | 40 31 4 | 2712 | 38 54 40 | 2750 | 37 19 6 |
| | α Arietis E. | 84 8 41 | 2367 | 82 24 19 | 2374 | 80 40 7 | 2382 | 78 56 6 |
| | Jupiter E. | 84 15 59 | 2278 | 82 29 27 | 2285 | 80 43 5 | 2291 | 78 56 52 |
| 7 | Sun W. | 99 36 37 | 2692 | 101 13 28 | 2699 | 102 50 9 | 2708 | 104 26 39 |
| | Venus W. | 57 7 23 | 2779 | 58 42 18 | 2785 | 60 17 5 | 2793 | 61 51 42 |
| | Jupiter E. | 70 8 16 | 2332 | 68 23 3 | 2340 | 66 38 1 | 2346 | 64 53 8 |
| | α Arietis E. | 70 18 41 | 2428 | 68 35 46 | 2436 | 66 53 3 | 2445 | 65 10 33 |
| | Aldebaran E. | 103 24 49 | 2376 | 101 40 40 | 2384 | 99 56 42 | 2390 | 98 12 53 |
| 8 | Sun W. | 112 26 39 | 2753 | 114 2 8 | 2761 | 115 37 27 | 2769 | 117 12 3 |
| | Venus W. | 69 42 30 | 2836 | 71 16 11 | 2844 | 72 49 42 | 2852 | 74 23 |
| | Saturn W. | 26 26 30 | 2569 | 28 6 8 | 2562 | 29 45 56 | 2558 | 31 25 4 |
| | Jupiter E. | 56 11 25 | 2391 | 54 27 37 | 2398 | 52 43 59 | 2405 | 51 0 3 |
| | α Arietis E. | 56 41 14 | 2502 | 55 0 4 | 2512 | 53 19 8 | 2524 | 51 38 2 |
| | Aldebaran E. | 89 36 22 | 2434 | 87 53 35 | 2440 | 86 10 57 | 2448 | 84 28 3 |
| 9 | Sun W. | 125 5 40 | 2817 | 126 39 46 | 2825 | 128 13 41 | 2833 | 129 47 2 |
| | Venus W. | 82 7 16 | 2899 | 83 39 36 | 2908 | 85 11 45 | 2916 | 86 43 4 |
| | Saturn W. | 39 45 31 | 2561 | 41 25 20 | 2564 | 43 5 5 | 2568 | 44 44 4 |
| | Jupiter E. | 42 26 2 | 2453 | 40 43 42 | 2460 | 39 1 33 | 2469 | 37 19 3 |
| | α Arietis E. | 43 19 18 | 2601 | 41 40 24 | 2616 | 40 1 51 | 2633 | 38 23 4 |
| | Aldebaran E. | 75 58 53 | 2492 | 74 17 29 | 2500 | 72 36 16 | 2508 | 70 55 1 |
| 10 | Venus W. | 94 20 56 | 2968 | 95 51 49 | 2976 | 97 22 32 | 2985 | 98 53 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month | Star's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 2 | Sun | W. | 39 58 20 | 2517 | 41 39 10 | 2517 | 43 20 0 | 2517 | 45 0 49 | 2518 |
| | Saturn | E. | 52 21 3 | 2258 | 50 34 2 | 2260 | 48 47 3 | 2263 | 47 0 10 | 2268 |
| | Mars | E. | 72 36 37 | 2384 | 70 52 39 | 2385 | 69 8 42 | 2387 | 67 24 48 | 2387 |
| | Fomalhaut | E. | 73 46 48 | 2726 | 72 10 43 | 2737 | 70 34 52 | 2749 | 68 59 17 | 2763 |
| | α Pegasi | E. | 89 58 7 | 2356 | 88 13 29 | 2357 | 86 28 52 | 2358 | 84 44 16 | 2359 |
| 3 | Sun | W. | 53 24 28 | 2528 | 55 5 2 | 2530 | 56 45 33 | 2534 | 58 25 59 | 2538 |
| | Saturn | E. | 38 7 32 | 2299 | 36 21 31 | 2309 | 34 35 44 | 2320 | 32 50 13 | 2331 |
| | Mars | E. | 58 46 8 | 2405 | 57 2 40 | 2410 | 55 19 19 | 2415 | 53 36 5 | 2420 |
| | Fomalhaut | E. | 61 6 54 | 2865 | 59 33 50 | 2892 | 58 1 21 | 2922 | 56 29 30 | 2955 |
| | α Pegasi | E. | 76 2 13 | 2378 | 74 18 7 | 2383 | 72 34 8 | 2390 | 70 50 19 | 2396 |
| 4 | Sun | W. | 66 46 45 | 2561 | 68 26 34 | 2565 | 70 6 17 | 2571 | 71 45 52 | 2577 |
| | Venus | W. | 25 7 9 | 2722 | 26 43 20 | 2716 | 28 19 39 | 2712 | 29 56 3 | 2710 |
| | Mars | E. | 45 2 17 | 2458 | 43 20 5 | 2467 | 41 38 6 | 2478 | 39 56 22 | 2489 |
| | Fomalhaut | E. | 49 2 11 | 3181 | 47 35 39 | 3241 | 46 10 18 | 3308 | 44 46 16 | 3381 |
| | α Pegasi | E. | 62 14 6 | 2444 | 60 31 34 | 2455 | 58 49 18 | 2469 | 57 7 21 | 2483 |
| | Jupiter | E. | 105 45 53 | 2210 | 103 57 40 | 2215 | 102 9 34 | 2219 | 100 21 35 | 2224 |
| 5 | Sun | W. | 80 1 48 | 2607 | 81 40 34 | 2614 | 83 19 10 | 2620 | 84 57 38 | 2627 |
| | Venus | W. | 37 58 15 | 2715 | 39 34 35 | 2719 | 41 10 50 | 2723 | 42 47 0 | 2726 |
| | Mars | E. | 31 32 4 | 2562 | 29 52 17 | 2583 | 28 12 58 | 2606 | 26 34 11 | 2631 |
| | Fomalhaut | E. | 38 10 16 | 3907 | 36 57 3 | 4056 | 35 46 18 | 4224 | 34 38 15 | 4416 |
| | α Pegasi | E. | 48 43 5 | 2572 | 47 3 32 | 2595 | 45 24 30 | 2621 | 43 46 3 | 2648 |
| | Jupiter | E. | 91 23 41 | 2253 | 89 36 32 | 2259 | 87 49 32 | 2265 | 86 2 41 | 2271 |
| 6 | Sun | W. | 93 7 35 | 2663 | 94 45 5 | 2669 | 96 22 26 | 2677 | 97 59 37 | 2685 |
| | Venus | W. | 50 46 15 | 2753 | 52 21 44 | 2759 | 53 57 6 | 2766 | 55 32 18 | 2772 |
| | Mars | E. | 18 31 21 | 2860 | 16 58 11 | 2946 | 15 26 50 | 3059 | 13 57 50 | 3214 |
| | α Pegasi | E. | 35 44 27 | 2839 | 34 10 50 | 2894 | 32 38 23 | 2954 | 31 7 13 | 3025 |
| | α Arietis | E. | 77 12 15 | 2396 | 75 28 35 | 2404 | 73 45 6 | 2412 | 72 1 48 | 2419 |
| | Jupiter | E. | 77 10 49 | 2304 | 75 24 55 | 2311 | 73 39 12 | 2318 | 71 53 39 | 2325 |
| 7 | Sun | W. | 106 3 0 | 2723 | 107 39 10 | 2730 | 109 15 10 | 2738 | 110 50 59 | 2745 |
| | Venus | W. | 63 26 11 | 2807 | 65 0 30 | 2815 | 66 34 39 | 2821 | 68 8 40 | 2829 |
| | Jupiter | E. | 63 8 27 | 2361 | 61 23 56 | 2368 | 59 39 35 | 2375 | 57 55 25 | 2382 |
| | α Arietis | E. | 63 28 15 | 2463 | 61 46 10 | 2472 | 60 4 18 | 2482 | 58 22 39 | 2492 |
| | Aldebaran | E. | 96 29 15 | 2405 | 94 45 47 | 2411 | 93 2 28 | 2419 | 91 19 20 | 2426 |
| 8 | Sun | W. | 118 47 33 | 2785 | 120 22 21 | 2793 | 121 56 58 | 2802 | 123 31 24 | 2809 |
| | Venus | W. | 75 56 14 | 2867 | 77 29 15 | 2875 | 79 2 6 | 2884 | 80 34 46 | 2891 |
| | Saturn | W. | 33 5 46 | 2554 | 34 45 44 | 2554 | 36 25 42 | 2556 | 38 5 38 | 2558 |
| | Jupiter | E. | 49 17 15 | 2421 | 47 34 10 | 2429 | 45 51 16 | 2436 | 44 8 33 | 2445 |
| | α Arietis | E. | 49 58 4 | 2546 | 48 17 55 | 2560 | 46 38 5 | 2572 | 44 58 32 | 2586 |
| | Aldebaran | E. | 82 46 14 | 2463 | 81 4 8 | 2469 | 79 22 12 | 2477 | 77 40 27 | 2485 |
| 9 | Sun | W. | 131 20 59 | 2850 | 132 54 22 | 2858 | 134 27 35 | 2867 | 136 0 36 | 2875 |
| | Venus | W. | 88 15 32 | 2933 | 89 47 9 | 2941 | 91 18 36 | 2950 | 92 49 51 | 2958 |
| | Saturn | W. | 46 24 17 | 2577 | 48 3 43 | 2583 | 49 43 2 | 2588 | 51 22 13 | 2593 |
| | Jupiter | E. | 35 37 52 | 2486 | 33 56 19 | 2495 | 32 14 59 | 2505 | 30 33 52 | 2514 |
| | α Arietis | E. | 36 45 55 | 2671 | 35 8 36 | 2692 | 33 31 45 | 2715 | 31 55 25 | 2741 |
| | Aldebaran | E. | 69 14 22 | 2524 | 67 33 42 | 2532 | 65 53 13 | 2539 | 64 12 54 | 2547 |
| 10 | Venus | W. | 100 23 23 | 3004 | 101 53 31 | 3014 | 103 23 2[illegible] | 3022 | 104 53 12 | 3033 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 10 | α Aquilæ W. | 67 29 45 | 3017 | 68 59 37 | 3014 | 70 29 32 | 3013 | 71 59 29 | 3013 |
| | Saturn W. | 53 1 17 | 2600 | 54 40 12 | 2606 | 56 18 59 | 2613 | 57 57 37 | 2620 |
| | Mars W. | 29 43 1 | 2835 | 31 16 43 | 2832 | 32 50 29 | 2831 | 34 24 17 | 2832 |
| | Jupiter E. | 28 52 58 | 2524 | 27 12 18 | 2534 | 25 31 52 | 2545 | 23 51 41 | 2556 |
| | Aldebaran E. | 62 32 47 | 2556 | 60 52 51 | 2564 | 59 13 7 | 2572 | 57 33 34 | 2580 |
| | Pollux E. | 104 52 35 | 2638 | 103 14 31 | 2645 | 101 36 37 | 2651 | 99 58 51 | 2658 |
| 11 | Venus W. | 106 22 44 | 3042 | 107 52 5 | 3052 | 109 21 14 | 3062 | 110 50 10 | 3072 |
| | α Aquilæ W. | 79 28 58 | 3023 | 80 58 42 | 3028 | 82 28 20 | 3034 | 83 57 51 | 3040 |
| | Saturn W. | 66 8 24 | 2656 | 67 46 3 | 2663 | 69 23 32 | 2671 | 71 0 51 | 2680 |
| | Fomalhaut W. | 51 52 0 | 3414 | 53 14 1 | 3389 | 54 36 30 | 3366 | 55 59 25 | 3346 |
| | Mars W. | 42 12 43 | 2846 | 43 46 11 | 2852 | 45 19 32 | 2857 | 46 52 46 | 2863 |
| | Aldebaran E. | 49 18 44 | 2625 | 47 40 23 | 2634 | 46 2 14 | 2643 | 44 24 17 | 2652 |
| | Pollux E. | 91 52 32 | 2696 | 90 15 47 | 2705 | 88 39 14 | 2714 | 87 2 53 | 2723 |
| 12 | Saturn W. | 79 4 39 | 2722 | 80 40 50 | 2730 | 82 16 50 | 2738 | 83 52 39 | 2746 |
| | Fomalhaut W. | 62 58 45 | 3283 | 64 23 16 | 3275 | 65 47 57 | 3270 | 67 12 44 | 3265 |
| | Mars W. | 54 36 52 | 2898 | 56 9 14 | 2905 | 57 41 26 | 2913 | 59 13 28 | 2921 |
| | α Pegasi W. | 43 38 31 | 3000 | 45 8 44 | 2991 | 46 39 8 | 2985 | 48 9 40 | 2980 |
| | Aldebaran E. | 36 17 53 | 2703 | 34 41 17 | 2715 | 33 4 57 | 2726 | 31 28 51 | 2738 |
| | Pollux E. | 79 4 4 | 2770 | 77 28 57 | 2779 | 75 54 2 | 2789 | 74 19 20 | 2801 |
| 13 | Saturn W. | 91 48 41 | 2794 | 93 23 17 | 2804 | 94 57 40 | 2813 | 96 31 51 | 2823 |
| | Fomalhaut W. | 74 17 29 | 3261 | 75 42 26 | 3263 | 77 7 21 | 3265 | 78 32 13 | 3270 |
| | Mars W. | 66 51 0 | 2965 | 68 21 57 | 2974 | 69 52 43 | 2983 | 71 23 17 | 2992 |
| | α Pegasi W. | 55 43 23 | 2973 | 57 14 10 | 2974 | 58 44 55 | 2977 | 60 15 37 | 2980 |
| | Pollux E. | 66 29 26 | 2856 | 64 56 11 | 2869 | 63 23 12 | 2881 | 61 50 29 | 2894 |
| | Regulus E. | 102 56 6 | 2773 | 101 21 3 | 2782 | 99 46 12 | 2791 | 98 11 33 | 2801 |
| 14 | Saturn W. | 104 19 36 | 2871 | 105 52 32 | 2882 | 107 25 14 | 2892 | 108 57 43 | 2902 |
| | Mars W. | 78 53 15 | 3039 | 80 22 39 | 3048 | 81 51 52 | 3058 | 83 20 53 | 3069 |
| | α Pegasi W. | 67 47 59 | 3002 | 69 18 9 | 3009 | 70 48 11 | 3014 | 72 18 7 | 3021 |
| | α Arietis W. | 24 19 45 | 3138 | 25 47 8 | 3115 | 27 15 0 | 3096 | 28 43 15 | 3082 |
| | Jupiter W. | 23 41 57 | 2811 | 25 16 11 | 2816 | 26 50 18 | 2824 | 28 24 14 | 2831 |
| | Pollux E. | 54 11 5 | 2963 | 52 40 6 | 2978 | 51 9 26 | 2993 | 49 39 5 | 3010 |
| | Regulus E. | 90 21 20 | 2847 | 88 47 53 | 2857 | 87 14 39 | 2866 | 85 41 37 | 2876 |
| 15 | Mars W. | 90 42 59 | 3115 | 92 10 50 | 3125 | 93 38 29 | 3134 | 95 5 57 | 3144 |
| | α Pegasi W. | 79 45 37 | 3056 | 81 14 40 | 3064 | 82 43 34 | 3071 | 84 12 19 | 3080 |
| | Jupiter W. | 36 11 32 | 2871 | 37 44 28 | 2878 | 39 17 15 | 2887 | 40 49 51 | 2895 |
| | α Arietis W. | 36 7 40 | 3050 | 37 36 50 | 3048 | 39 6 3 | 3049 | 40 35 15 | 3050 |
| | Pollux E. | 42 12 45 | 3104 | 40 44 41 | 3126 | 39 17 3 | 3150 | 37 49 54 | 3174 |
| | Regulus E. | 77 59 27 | 2923 | 76 27 37 | 2932 | 74 55 59 | 2940 | 73 24 31 | 2950 |
| 16 | Mars W. | 102 20 30 | 3188 | 103 46 53 | 3198 | 105 13 5 | 3205 | 106 39 8 | 3214 |
| | Jupiter W. | 48 30 17 | 2934 | 50 1 53 | 2942 | 51 33 19 | 2949 | 53 4 36 | 2956 |
| | α Arietis W. | 48 0 45 | 3063 | 49 29 40 | 3066 | 50 58 31 | 3070 | 52 27 17 | 3074 |
| | Aldebaran W. | 14 26 20 | 3095 | 15 54 36 | 3081 | 17 23 9 | 3073 | 18 51 52 | 3067 |
| | Pollux E. | 30 42 31 | 3339 | 29 19 5 | 3385 | 27 56 31 | 3434 | 26 34 53 | 3492 |
| | Regulus E. | 65 50 7 | 2993 | 64 19 46 | 3002 | 62 49 36 | 3011 | 61 19 37 | 3019 |
| 17 | Jupiter W. | 60 38 50 | 2989 | 62 9 17 | 2994 | 63 39 37 | 3001 | 65 9 49 | 3006 |
| | α Arietis W. | 59 49 53 | 3095 | 61 18 9 | 3099 | 62 46 20 | 3103 | 64 14 26 | 3106 |

## MEAN TIME.

### LUNAR DISTANCES.

| Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| Aquilæ | W. | 73 29 26 | 3013 | 74 59 23 | 3014 | 76 29 18 | 3017 | 77 59 10 | 3020 |
| aturn | W. | 59 36 5 | 2627 | 61 14 24 | 2633 | 62 52 34 | 2641 | 64 30 34 | 2648 |
| lars | W. | 35 58 4 | 2833 | 37 31 49 | 2835 | 39 5 32 | 2838 | 40 39 10 | 2842 |
| upiter | E. | 22 11 46 | 2569 | 20 32 8 | 2583 | 18 52 49 | 2599 | 17 13 52 | 2616 |
| ldebaran | E. | 55 54 12 | 2589 | 54 15 2 | 2598 | 52 36 4 | 2607 | 50 57 18 | 2615 |
| ollux | E. | 98 21 15 | 2666 | 96 43 49 | 2673 | 95 6 33 | 2681 | 93 29 27 | 2689 |
| enus | W. | 112 18 54 | 3083 | 113 47 25 | 3093 | 115 15 43 | 3103 | 116 43 49 | 3114 |
| Aquilæ | W. | 85 27 14 | 3046 | 86 56 30 | 3054 | 88 25 36 | 3062 | 89 54 32 | 3070 |
| aturn | W. | 72 37 58 | 2687 | 74 14 55 | 2695 | 75 51 41 | 2704 | 77 28 15 | 2712 |
| omalhaut | W. | 57 22 43 | 3330 | 58 46 20 | 3315 | 60 10 14 | 3302 | 61 34 23 | 3291 |
| lars | W. | 48 25 52 | 2870 | 49 58 50 | 2876 | 51 31 40 | 2883 | 53 4 20 | 2890 |
| ldebaran | E. | 42 46 33 | 2663 | 41 9 3 | 2672 | 39 31 46 | 2682 | 37 54 42 | 2693 |
| ollux | E. | 85 26 43 | 2732 | 83 50 45 | 2741 | 82 14 59 | 2750 | 80 39 25 | 2760 |
| aturn | W. | 85 28 15 | 2757 | 87 3 40 | 2766 | 88 38 52 | 2775 | 90 13 53 | 2785 |
| omalhaut | W. | 68 37 36 | 3262 | 70 2 32 | 3259 | 71 27 31 | 3259 | 72 52 30 | 3259 |
| lars | W. | 60 45 20 | 2930 | 62 17 1 | 2938 | 63 48 32 | 2947 | 65 19 51 | 2955 |
| Pegasi | W. | 49 40 18 | 2976 | 51 11 1 | 2974 | 52 41 47 | 2972 | 54 12 35 | 2972 |
| ldebaran | E. | 29 53 2 | 2750 | 28 17 28 | 2763 | 26 42 12 | 2777 | 25 7 14 | 2792 |
| ollux | E. | 72 44 53 | 2811 | 71 10 39 | 2822 | 69 36 40 | 2833 | 68 2 55 | 2845 |
| aturn | W. | 98 5 49 | 2832 | 99 39 35 | 2842 | 101 13 8 | 2852 | 102 46 29 | 2862 |
| omalhaut | W. | 79 57 0 | 3275 | 81 21 41 | 3279 | 82 46 17 | 3286 | 84 10 45 | 3292 |
| lars | W. | 72 53 40 | 3001 | 74 23 52 | 3011 | 75 53 51 | 3020 | 77 23 39 | 3030 |
| Pegasi | W. | 61 46 15 | 2983 | 63 16 49 | 2987 | 64 47 18 | 2991 | 66 17 42 | 2997 |
| ollux | E. | 60 18 2 | 2907 | 58 45 52 | 2920 | 57 13 58 | 2935 | 55 42 23 | 2948 |
| egulus | E. | 96 37 6 | 2810 | 95 2 51 | 2820 | 93 28 49 | 2828 | 91 54 58 | 2838 |
| aturn | W. | 110 30 0 | 2912 | 112 2 4 | 2921 | 113 33 56 | 2932 | 115 5 34 | 2942 |
| lars | W. | 84 49 41 | 3077 | 86 18 19 | 3087 | 87 46 44 | 3097 | 89 14 57 | 3106 |
| Pegasi | W. | 73 47 54 | 3027 | 75 17 33 | 3034 | 76 47 3 | 3041 | 78 16 25 | 3049 |
| Arietis | W. | 30 11 47 | 3070 | 31 40 33 | 3062 | 33 9 29 | 3056 | 34 38 32 | 3052 |
| upiter | W. | 29 58 2 | 2838 | 31 31 40 | 2847 | 33 5 7 | 2854 | 34 38 25 | 2863 |
| ollux | E. | 48 9 5 | 3027 | 46 39 26 | 3045 | 45 10 9 | 3064 | 43 41 15 | 3082 |
| egulus | E. | 84 8 47 | 2885 | 82 36 9 | 2894 | 81 3 43 | 2904 | 79 31 29 | 2913 |
| lars | W. | 96 33 13 | 3153 | 98 0 19 | 3163 | 99 27 13 | 3171 | 100 53 57 | 3180 |
| Pegasi | W. | 85 40 53 | 3087 | 87 9 18 | 3096 | 88 37 32 | 3104 | 90 5 37 | 3112 |
| upiter | W. | 42 22 16 | 2903 | 43 54 31 | 2911 | 45 26 36 | 2918 | 46 58 32 | 2927 |
| Arietis | W. | 42 4 26 | 3052 | 43 33 35 | 3053 | 45 2 42 | 3056 | 46 31 46 | 3060 |
| ollux | E. | 36 23 14 | 3202 | 34 57 8 | 3231 | 33 31 36 | 3264 | 32 6 43 | 3300 |
| egulus | E. | 71 53 16 | 2959 | 70 22 12 | 2968 | 68 51 19 | 2977 | 67 20 37 | 2986 |
| lars | W. | 108 5 0 | 3221 | 109 30 44 | 3230 | 110 56 17 | 3237 | 112 21 42 | 3245 |
| upiter | W. | 54 35 44 | 2963 | 56 6 43 | 2970 | 57 37 33 | 2976 | 59 8 16 | 2983 |
| Arietis | W. | 53 55 59 | 3078 | 55 24 35 | 3083 | 56 53 6 | 3087 | 58 21 32 | 3091 |
| ldebaran | W. | 20 20 42 | 3064 | 21 49 36 | 3064 | 23 18 30 | 3063 | 24 47 25 | 3064 |
| ollux | E. | 25 14 20 | 3558 | 23 55 0 | 3636 | 22 37 4 | 3728 | 21 20 47 | 3837 |
| egulus | E. | 59 49 48 | 3027 | 58 20 9 | 3035 | 56 50 40 | 3043 | 55 21 20 | 3051 |
| upiter | W. | 66 39 55 | 3010 | 68 9 55 | 3015 | 69 39 49 | 3019 | 71 9 38 | 3024 |
| Arietis | W. | 65 42 28 | 3110 | 67 10 25 | 3113 | 68 38 19 | 3117 | 70 6 8 | 3119 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 17 | Aldebaran | W. | 26 16 18 | 3066 | 27 45 9 | 3068 | 29 13 58 | 3070 | 30 42 44 |
| | Pollux | E. | 20 6 23 | 3969 | 18 54 13 | 4133 | 17 44 43 | 4337 | 16 38 24 |
| | Regulus | E. | 53 52 10 | 3058 | 52 23 9 | 3065 | 50 54 17 | 3072 | 49 25 33 |
| | Sun | E. | 140 55 29 | 3407 | 139 33 20 | 3414 | 138 11 19 | 3419 | 136 49 24 |
| 18 | Jupiter | W. | 72 39 21 | 3027 | 74 9 0 | 3031 | 75 38 35 | 3034 | 77 8 6 |
| | α Arietis | W. | 71 33 54 | 3122 | 73 1 37 | 3125 | 74 29 16 | 3127 | 75 56 53 |
| | Aldebaran | W. | 38 5 46 | 3086 | 39 34 13 | 3087 | 41 2 38 | 3089 | 42 31 0 |
| | Regulus | E. | 42 4 2 | 3113 | 40 36 8 | 3119 | 39 8 21 | 3126 | 37 40 43 |
| | Spica ♍ | E. | 95 37 28 | 3065 | 94 8 35 | 3067 | 92 39 45 | 3071 | 91 11 0 |
| | Sun | E. | 130 1 23 | 3449 | 128 40 2 | 3454 | 127 18 46 | 3456 | 125 57 33 |
| 19 | Jupiter | W. | 84 35 1 | 3043 | 86 4 20 | 3044 | 87 33 38 | 3044 | 89 2 56 |
| | α Arietis | W. | 83 14 30 | 3134 | 84 41 59 | 3134 | 86 9 28 | 3134 | 87 36 57 |
| | Aldebaran | W. | 49 52 31 | 3094 | 51 20 48 | 3094 | 52 49 5 | 3093 | 54 17 23 |
| | Regulus | E. | 30 24 29 | 3168 | 28 57 41 | 3176 | 27 31 3 | 3186 | 26 4 37 |
| | Spica ♍ | E. | 83 47 50 | 3080 | 82 19 16 | 3080 | 80 50 43 | 3080 | 79 22 9 |
| | Sun | E. | 119 12 9 | 3468 | 117 51 9 | 3468 | 116 30 9 | 3468 | 115 9 9 |
| 20 | Jupiter | W. | 96 29 50 | 3034 | 97 59 21 | 3030 | 99 28 56 | 3026 | 100 58 30 |
| | α Arietis | W. | 94 54 47 | 3123 | 96 22 29 | 3119 | 97 50 15 | 3116 | 99 18 [illegible] |
| | Aldebaran | W. | 61 39 24 | 3080 | 63 7 58 | 3077 | 64 36 36 | 3072 | 66 5 26 |
| | Pollux | W. | 21 58 34 | 3741 | 23 14 38 | 3662 | 24 32 6 | 3593 | 25 50 45 |
| | Spica ♍ | E. | 71 58 57 | 3069 | 70 30 10 | 3066 | 69 1 19 | 3062 | 67 32 23 |
| | Sun | E. | 108 23 44 | 3455 | 107 2 30 | 3453 | 105 41 13 | 3447 | 104 19 56 |
| 21 | Jupiter | W. | 108 28 23 | 2995 | 109 58 42 | 2987 | 111 29 11 | 2981 | 112 59 41 |
| | Aldebaran | W. | 73 30 35 | 3038 | 75 0 1 | 3030 | 76 29 36 | 3021 | 77 59 23 |
| | Pollux | W. | 32 38 3 | 3332 | 34 1 38 | 3301 | 35 25 48 | 3274 | 36 50 30 |
| | Spica ♍ | E. | 60 6 10 | 3028 | 58 36 32 | 3022 | 57 6 46 | 3014 | 55 36 51 |
| | Sun | E. | 97 31 27 | 3412 | 96 9 24 | 3403 | 94 47 11 | 3396 | 93 24 50 |
| 22 | Aldebaran | W. | 85 30 54 | 2966 | 87 1 50 | 2954 | 88 33 0 | 2943 | 90 4 24 |
| | Pollux | W. | 44 1 7 | 3137 | 45 28 32 | 3116 | 46 56 22 | 3097 | 48 24 38 |
| | Spica ♍ | E. | 48 4 25 | 2957 | 46 33 18 | 2946 | 45 1 58 | 2935 | 43 30 23 |
| | Sun | E. | 86 30 16 | 3335 | 85 6 45 | 3322 | 83 42 59 | 3310 | 82 18 59 |
| 23 | Pollux | W. | 55 51 35 | 2984 | 57 22 8 | 2965 | 58 53 5 | 2946 | 60 24 26 |
| | Regulus | W. | 18 53 13 | 3052 | 20 22 22 | 3010 | 21 52 22 | 2975 | 23 23 6 |
| | Spica ♍ | E. | 35 48 33 | 2858 | 34 15 20 | 2843 | 32 41 48 | 2828 | 31 7 57 |
| | Sun | E. | 75 15 4 | 3227 | 73 49 27 | 3210 | 72 23 30 | 3195 | 70 57 15 |
| 24 | Pollux | W. | 68 7 2 | 2835 | 69 40 45 | 2815 | 71 14 53 | 2797 | 72 49 25 |
| | Regulus | W. | 31 6 6 | 2810 | 32 40 21 | 2788 | 34 15 5 | 2765 | 35 50 19 |
| | Spica ♍ | E. | 23 13 43 | 2734 | 21 37 48 | 2718 | 20 1 32 | 2701 | 18 24 53 |
| | Sun | E. | 63 41 0 | 3093 | 62 12 42 | 3075 | 60 44 2 | 3056 | 59 14 59 |
| 25 | Pollux | W. | 80 48 17 | 2684 | 82 25 18 | 2665 | 84 2 45 | 2646 | 85 40 37 |
| | Regulus | W. | 43 53 38 | 2638 | 45 31 41 | 2617 | 47 10 13 | 2597 | 48 49 15 |
| | Sun | E. | 51 43 59 | 2944 | 50 12 36 | 2924 | 48 40 48 | 2905 | 47 8 33 |
| 26 | Pollux | W. | 93 56 7 | 2538 | 95 36 27 | 2522 | 97 17 10 | 2504 | 98 58 18 |
| | Regulus | W. | 57 10 54 | 2480 | 58 52 35 | 2462 | 60 34 42 | 2443 | 62 17 1[illegible] |
| | Sun | E. | 39 21 22 | 2791 | 37 46 42 | 2772 | 36 11 37 | 2753 | 34 36 [illegible] |

## MEAN TIME.

### LUNAR DISTANCES.

| r's Name and osition. | | Midnight. | P. L. of diff. | XV$^h$. | P. L. of diff. | XVIII$^h$. | P. L. of diff. | XXI$^h$. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| baran | W. | 32 11 27 | 3076 | 33 40 6 | 3078 | 35 8 42 | 3080 | 36 37 16 | 3083 |
| ıx | E. | 15 35 54 | 4925 | 14 37 59 | 5361 | 13 45 36 | 5947 | 12 59 50 | 6756 |
| ılus | E. | 47 56 59 | 3086 | 46 28 32 | 3093 | 45 0 14 | 3100 | 43 32 4 | 3106 |
| | E. | 135 27 36 | 3431 | 134 5 54 | 3437 | 132 44 19 | 3440 | 131 22 48 | 3446 |
| ter | W. | 78 37 34 | 3039 | 80 6 59 | 3041 | 81 36 21 | 3042 | 83 5 42 | 3043 |
| ietis | W. | 77 24 28 | 3131 | 78 52 0 | 3132 | 80 19 31 | 3133 | 81 47 1 | 3134 |
| baran | W. | 43 59 21 | 3092 | 45 27 40 | 3093 | 46 55 58 | 3094 | 48 24 15 | 3095 |
| ılus | E. | 36 13 12 | 3138 | 34 45 49 | 3145 | 33 18 34 | 3152 | 31 51 27 | 3159 |
| ı ny | E. | 89 42 17 | 3076 | 88 13 38 | 3077 | 86 45 0 | 3078 | 85 16 24 | 3080 |
| | E. | 124 36 24 | 3462 | 123 15 17 | 3464 | 121 54 13 | 3465 | 120 33 10 | 3467 |
| ler | W. | 90 32 16 | 3043 | 92 1 36 | 3041 | 93 30 58 | 3039 | 95 0 23 | 3037 |
| ietis | W. | 89 4 27 | 3131 | 90 31 59 | 3130 | 91 59 32 | 3128 | 93 27 8 | 3125 |
| baran | W. | 55 45 42 | 3091 | 57 14 3 | 3088 | 58 42 27 | 3086 | 60 10 53 | 3083 |
| ılus | E. | 24 38 24 | 3209 | 23 12 26 | 3225 | 21 46 46 | 3244 | 20 21 29 | 3265 |
| ı ny | E. | 77 53 35 | 3078 | 76 24 59 | 3077 | 74 56 21 | 3075 | 73 27 41 | 3072 |
| | E. | 113 48 7 | 3466 | 112 27 5 | 3463 | 111 6 0 | 3462 | 109 44 54 | 3459 |
| ter | W. | 102 28 20 | 3018 | 103 58 11 | 3013 | 105 28 8 | 3008 | 106 58 11 | 3001 |
| ietis | W. | 100 46 0 | 3108 | 102 14 0 | 3103 | 103 42 6 | 3098 | 105 10 18 | 3092 |
| baran | W. | 67 34 9 | 3062 | 69 3 5 | 3057 | 70 32 7 | 3051 | 72 1 17 | 3044 |
| ıx | W. | 27 10 34 | 3484 | 28 31 16 | 3439 | 29 52 48 | 3400 | 31 15 5 | 3364 |
| ı ny | E. | 66 3 22 | 3052 | 64 34 14 | 3047 | 63 5 0 | 3042 | 61 35 39 | 3035 |
| | E. | 102 58 23 | 3438 | 101 36 49 | 3432 | 100 15 9 | 3426 | 98 53 22 | 3419 |
| ter | W. | 114 30 36 | 2964 | 116 1 34 | 2955 | 117 32 43 | 2946 | 119 4 4 | 2936 |
| baran | W. | 79 29 17 | 3006 | 80 59 23 | 2996 | 82 29 41 | 2986 | 84 0 11 | 2976 |
| ıx | W. | 38 15 42 | 3224 | 39 41 23 | 3200 | 41 7 32 | 3178 | 42 34 7 | 3158 |
| ı ny | E. | 54 6 44 | 2997 | 52 36 27 | 2987 | 51 5 58 | 2978 | 49 35 18 | 2968 |
| | E. | 92 2 18 | 3377 | 90 39 35 | 3367 | 89 16 41 | 3357 | 87 53 35 | 3345 |
| baran | W. | 91 36 3 | 2919 | 93 7 58 | 2906 | 94 40 9 | 2894 | 96 12 36 | 2880 |
| ıx | W. | 49 53 13 | 3059 | 51 22 13 | 3039 | 52 51 37 | 3020 | 54 21 25 | 3002 |
| ı ny | E. | 41 58 33 | 2911 | 40 26 28 | 2898 | 38 54 6 | 2885 | 37 21 28 | 2872 |
| | E. | 80 54 44 | 3284 | 79 30 14 | 3271 | 78 5 28 | 3256 | 76 40 25 | 3241 |
| ıx | W. | 61 56 9 | 2909 | 63 28 17 | 2891 | 65 0 48 | 2872 | 66 33 43 | 2853 |
| ılus | W. | 24 54 31 | 2913 | 26 26 33 | 2885 | 27 59 11 | 2859 | 29 32 23 | 2835 |
| ı ny | E. | 29 33 47 | 2798 | 27 59 17 | 2783 | 26 24 27 | 2766 | 24 49 15 | 2751 |
| | E. | 69 30 41 | 3162 | 68 3 46 | 3146 | 66 36 32 | 3129 | 65 8 57 | 3110 |
| ıx | W. | 74 24 22 | 2760 | 75 59 43 | 2740 | 77 35 30 | 2722 | 79 11 41 | 2703 |
| ılus | W. | 37 26 2 | 2721 | 39 2 14 | 2700 | 40 38 54 | 2679 | 42 16 2 | 2658 |
| ı ny | E. | 16 47 51 | 2666 | 15 10 25 | 2649 | 13 32 36 | 2632 | 11 54 24 | 2614 |
| | E. | 57 45 34 | 3020 | 56 15 46 | 3001 | 54 45 34 | 2982 | 53 14 59 | 2962 |
| ıx | W. | 87 18 53 | 2610 | 88 57 35 | 2592 | 90 36 41 | 2574 | 92 16 12 | 2556 |
| ılus | W. | 50 28 38 | 2558 | 52 8 31 | 2538 | 53 48 52 | 2519 | 55 29 39 | 2499 |
| | E. | 45 35 58 | 2866 | 44 2 56 | 2848 | 42 29 30 | 2828 | 40 55 38 | 2809 |
| ıx | W. | 100 39 48 | 2472 | 102 21 41 | 2456 | 104 3 57 | 2441 | 105 46 34 | 2426 |
| ılus | W. | 64 0 15 | 2406 | 65 43 41 | 2389 | 67 27 31 | 2372 | 69 11 46 | 2354 |
| | E. | 33 0 13 | 2717 | 31 23 56 | 2700 | 29 47 16 | 2682 | 28 10 12 | 2666 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITER

### At $10^h\ 30^m$, Mean Time.

| Day of the Month. | West. | | | | | | | | | | | | | | | | | | East. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | | | | | | | O | 2· | | 1. | | | 3· | | | | | | ·4 |
| 2 | | | | | | | | | | | | | ·2 | | ·1 | | | O | 3· | | | | | | | | | | | 4. |
| 3 | | | | | | | | | | | | 3· | | | | | | O | ·2 | 1· | | | | | | | | | 4· | |
| 4 | | | | | | | | | ·3 | | | | | | | | ·1 | O | | | | 2· | | | | | 4· | | | |
| 5 | 1·O | | | | | | | | | | | | ·3 | | 2· | | | O | | | | | 4· | | | | | | | | |
| 6 | | | | | | | | | | | | | | | ·2 | | | O | 4· | ·1 ·3 | | | | | | | | | | |
| 7 | | | | | | | | | | | | | 4· | | 1· | | | O | | | | ·2 | | | ·3 | | | | | |
| 8 | | | | | | | | 4· | | | | | | | | | | O | | 2· | ·1 | | | | 3· | | | | | |
| 9 | | | | 4· | | | | | | | | 2· | | | ·1 | | | O | | 3· | | | | | | | | | | |
| 10 | | | ·4 | | | | | | | | | | 3· | | | | | O | | | 1· | | | | | | | | | |
| 11 | | | ·4 | | | | | | | | ·3 | | | | | | ·1 | O | | | | 2· | | | | | | | | |
| 12 | | | | | | | ·4 | | | | | ·3 | | | | 2· | | 1O· | | | | | | | | | | | | |
| 13 | | | | | | | | | | ·4 | | | | ·2 | | | | O | ·1 | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | 1· ·4 | O | | | | ·2 | | | ·3 | | | | | |
| 15 | | | | | | | | | | | | | | | | | | O | | 2· | ·1 ·4 | | | | 3· | | | | | |
| 16 | | | | | | | | | | | | | 2· | | ·1 | | | O | | | 3· | | | | | ·4 | | | | |
| 17 | | | | | | | | | | | | | | | 3· | | ·2 | O | | | 1· | | | | | | | | ·4 | |
| 18 | | | | | | | | | | | 3· | | | | | | ·1 | O | | | | 2. | | | | | | | | ·4 |
| 19 | | | | | | | | | | | | ·3 | | | | | 2· | O | 1· | | | | | | | | | | | 4. |
| 20 | ·1● | | | | | | | | | | | | | ·2 | | | | O | | | | | | | | | | 4· | | |
| 21 | | | | | | | | | | | | | | | | | 1· | O | | | ·2 | | | ·3 | | 4· | | | | |
| 22 | - | | | | | | | | | | | | | | | | | O | | | ·1 2· | 4· | | | 3. | | | | | |
| 23 | | | | | | | | | | | | | 2· | | 1· | | 4· | O | | | | 3· | | | | | | | | |
| 24 | | | | | | | | | | | | 4· | | | | 3· | ·2 | O | | | 1. | | | | | | | | | |
| 25 | | | | | | | | 4· | | | 3· | | | | ·1 | | | O | | | | 2. | | | | | | | | |
| 26 | | | 4· | | | | | | | | | ·3 | | | | | 2· | O | | 1· | | | | | | | | | | |
| 27 | | | ·4 | | | | | | | | | | | ·2 | | | ·1 ·3 | O | | | | | | | | | | | | |
| 28 | | | | 4· | | | | | | | | | | | | | | O | | | ·2 | | | ·3 | | | | | | |
| 29 | | | | | | | | | 4· | | | | | | | | | O | | ·1 | | 2· | | | | 3. | | | | |
| 30 | | | | | | | | | | | | | ·4 | | 2· | | 1· | O | | | | 3· | | | | | | | | |

This Table represents, at $10^h\ 30^m$ after *Mean Noon* of each day of the month, the relative pos of the images of Jupiter and his Satellites, as they would appear (disregarding their latitudes) inverting telescope. Jupiter is indicated by the white circles (O) in the centre of the page Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to distinguis Satellites from each other; and their positions are such as to indicate the directions of the S lites' motions, which are in all cases to be considered as *towards the numerals*. When a Satelli at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (O) at the left or right hand of the page, denotes that the Satellite placed by the side of *on* the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shado Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| .LITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| . | 1 | 1 6 31 ·3 | 15 49 13 ·7 | Em. |
| | 2 | 19 35 20 ·0 | 10 25 1 ·1 | Em. |
| | 4* | 14 4 4 ·0 | 5 0 43 ·7 | Em. |
| | 6* | 8 32 52 ·5 | 23 36 30 ·9 | Em. |
| | 8 | 3 1 36 ·2 | 18 12 13 ·3 | Em. |
| | 9 | 21 30 27 ·3 | 12 48 3 ·1 | Em. |
| | 11* | 15 59 13 ·4 | 7 23 48 ·0 | Em. |
| | 13* | 10 28 4 ·4 | 1 59 37 ·6 | Em. |
| | 15† | 4 56 50 ·3 | 20 35 22 ·2 | Em. |
| | 16 | 23 25 43 ·7 | 15 11 14 ·4 | Em. |
| | 18 | 17 54 32 ·1 | 9 47 1 ·5 | Em. |
| | 20* | 12 23 25 ·5 | 4 22 53 ·6 | Em. |
| | 22* | 6 52 13 ·3 | 22 58 40 ·1 | Em. |
| | 24 | 1 21 8 ·9 | 17 34 34 ·5 | Em. |
| | 25 | 19 49 59 ·3 | 12 10 23 ·5 | Em. |
| | 27* | 14 18 54 ·8 | 6 46 17 ·8 | Em. |
| | 29* | 8 47 44 ·5 | 1 22 6 ·2 | Em. |
| . | 3* | 9 19 33 ·7 | 0 11 30 ·1 | Em. |
| | 6 | 22 37 30 ·9 | 13 43 28 ·1 | Em. |
| | 10* | 11 55 35 ·5 | 3 15 33 ·5 | Em. |
| | 14 | 1 13 33 ·7 | 16 47 32 ·4 | Em. |
| | 17* | 14 31 36 ·9 | 6 19 36 ·4 | Em. |
| | 21 | 3 49 35 ·4 | 19 51 35 ·6 | Em. |
| | 24 | 17 7 36 ·5 | 9 23 37 ·5 | Em. |
| | 28* | 6 25 35 ·6 | 22 55 37 ·3 | Em. |
| I. | 6* | 6 45 46 ·9 | 21 49 7 ·8 | Em. |
| | 13* | 10 46 57 ·8 | 2 18 34 ·1 | Em. |
| | 20* | 12 43 18 ·7 | 4 42 50 ·1 | Im. |
| | 20* | 14 48 23 ·2 | 6 48 15 ·1 | Em. |
| | 27 | 16 45 58 ·8 | 9 13 45 ·9 | Im. |
| | 27 | 18 50 35 ·7 | 11 18 43 ·3 | Em. |



## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shad | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Eg |
| | d h m | d h m | d h m | d h m | d h m | d |
| I. | 2* 8 8 | | 1 10 57 | 1 13 8 | 1 11 3 | 1 1 |
| | 4* 2 40 | | 3* 5 30 | 3* 7 41 | 3* 5 39 | 3* |
| | 6* 21 13 | | 5* 0 3 | 5* 2 14 | 5* 0 14 | 5* |
| | 8 15 46 | | 7 18 35 | 7* 20 47 | 7 18 50 | 7* 2 |
| | 9 10 19 | | 8 13 8 | 9 15 20 | 8 13 26 | 9 1 |
| | 11* 4 52 | | 10* 7 41 | 10 9 53 | 10* 8 1 | 10 1 |
| | 13* 23 25 | | 12* 2 14 | 12* 4 26 | 12* 2 37 | 12* |
| | 15 17 58 | | 14* 20 47 | 14* 22 59 | 14* 21 13 | 14* 2 |
| | 16 12 32 | In the | 15 15 20 | 16 17 32 | 16 15 48 | 16 1 |
| | 18* 7 5 | | 17 9 53 | 17 12 5 | 17 10 24 | 17 1 |
| | 20* 1 38 | Shadow. | 19* 4 27 | 19* 6 38 | 19* 5 0 | 19* |
| | 22† 20 11 | | 21* 23 0 | 21* 1 11 | 21* 23 35 | 21* |
| | 23 14 45 | | 23 17 33 | 23 19 45 | 23 18 11 | 23† 2 |
| | 25 9 18 | | 24 12 6 | 24 14 18 | 24 12 47 | 24 1 |
| | 27* 3 52 | | 26* 6 40 | 26† 8 51 | 26* 7 23 | 26 |
| | 29* 22 25 | | 28* 1 13 | 28* 3 25 | 28* 1 58 | 28* |
| | | | 30 19 47 | 30* 21 59 | 30† 20 34 | 30* 2 |
| II. | 3* 21 27 | | 1* 2 19 | 1* 4 45 | 1* 2 28 | 1* |
| | 6 10 48 | | 5 15 40 | 5 18 6 | 5 16 1 | 5 1 |
| | 10* 0 9 | | 8* 5 2 | 8* 7 29 | 8* 5 34 | 8* |
| | 13 13 30 | In the | 12 18 23 | 12* 20 50 | 12 19 6 | 12* 2 |
| | 17* 2 51 | | 15* 7 45 | 15 10 13 | 15† 8 39 | 15 1 |
| | 21 16 13 | Shadow. | 19* 21 8 | 19* 23 35 | 19* 22 12 | 19* |
| | 24* 5 35 | | 22 10 31 | 22 12 59 | 22* 11 45 | 22 1 |
| | 28 18 58 | | 26* 23 54 | 26* 2 22 | 26* 1 18 | 26* |
| | | | 29 13 18 | 29 15 47 | 29 14 51 | 30 1 |
| III. | 6 18 50 | In the | 2* 5 3 | 2* 7 4 | 2* 5 24 | 2* |
| | 13* 22 33 | Shadow. | 9† 8 45 | 9 10 50 | 9 9 54 | 9 1 |
| | 20* 2 19 | 20* 4 29 | 16 12 30 | 16 14 38 | 16 14 24 | 17 1 |
| | 27* 6 9 | 27† 8 22 | 24 16 17 | 24 18 28 | 24 18 53 | 24* 2 |

| Day of the Month. | For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of A | B | C | D | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding 0d·840658. Days. | From Mean Noon of January 1. Day of the Year. | Fraction of the Year. |
|---|---|---|---|---|---|---|---|---|
| | | | | | h m s | | | |
| 1 | +1 ·1590 | +1 ·1119 | +0 ·0268 | +0 ·7945 | 9 15 57 ·26 | 223 | 304 | ·832 |
| 2 | 1 ·1526 | 1 ·1209 | 0 ·0277 | 0 ·7962 | 9 12 1 ·35 | 224 | 305 | ·835 |
| 3 | 1 ·1460 | 1 ·1297 | 0 ·0287 | 0 ·7980 | 9 8 5 ·44 | 225 | 306 | ·838 |
| 4 | +1 ·1392 | +1 ·1382 | +0 ·0297 | +0 ·7997 | 9 4 9 ·53 | 226 | 307 | ·841 |
| 5 | 1 ·1321 | 1 ·1463 | 0 ·0307 | 0 ·8015 | 9 0 13 ·62 | 227 | 308 | ·843 |
| 6 | 1 ·1247 | 1 ·1542 | 0 ·0317 | 0 ·8032 | 8 56 17 ·72 | 228 | 309 | ·846 |
| 7 | +1 ·1171 | +1 ·1619 | +0 ·0327 | +0 ·8049 | 8 52 21 ·81 | 229 | 310 | ·849 |
| 8 | 1 ·1093 | 1 ·1692 | 0 ·0337 | 0 ·8067 | 8 48 25 ·90 | 230 | 311 | ·851 |
| 9 | 1 ·1011 | 1 ·1763 | 0 ·0348 | 0 ·8084 | 8 44 29 ·99 | 231 | 312 | ·854 |
| 10 | +1 ·0926 | +1 ·1832 | +0 ·0358 | +0 ·8101 | 8 40 34 ·08 | 232 | 313 | ·857 |
| 11 | 1 ·0838 | 1 ·1898 | 0 ·0369 | 0 ·8118 | 8 36 38 ·17 | 233 | 314 | ·860 |
| 12 | 1 ·0747 | 1 ·1962 | 0 ·0379 | 0 ·8135 | 8 32 42 ·26 | 234 | 315 | ·862 |
| 13 | +1 ·0653 | +1 ·2024 | +0 ·0390 | +0 ·8151 | 8 28 46 ·35 | 235 | 316 | ·865 |
| 14 | 1 ·0555 | 1 ·2084 | 0 ·0401 | 0 ·8168 | 8 24 50 ·44 | 236 | 317 | ·868 |
| 15 | 1 ·0454 | 1 ·2141 | 0 ·0412 | 0 ·8184 | 8 20 54 ·53 | 237 | 318 | ·871 |
| 16 | +1 ·0348 | +1 ·2197 | +0 ·0423 | +0 ·8201 | 8 16 58 ·63 | 238 | 319 | ·873 |
| 17 | 1 ·0239 | 1 ·2250 | 0 ·0434 | 0 ·8217 | 8 13 2 ·72 | 239 | 320 | ·876 |
| 18 | 1 ·0125 | 1 ·2302 | 0 ·0445 | 0 ·8232 | 8 9 6 ·81 | 240 | 321 | ·879 |
| 19 | +1 ·0007 | +1 ·2352 | +0 ·0456 | +0 ·8248 | 8 5 10 ·90 | 241 | 322 | ·882 |
| 20 | 0 ·9884 | 1 ·2399 | 0 ·0468 | 0 ·8263 | 8 1 14 ·98 | 242 | 323 | ·884 |
| 21 | 0 ·9756 | 1 ·2445 | 0 ·0479 | 0 ·8278 | 7 57 19 ·07 | 243 | 324 | ·887 |
| 22 | +0 ·9623 | +1 ·2489 | +0 ·0491 | +0 ·8293 | 7 53 23 ·16 | 244 | 325 | ·890 |
| 23 | 0 ·9484 | 1 ·2532 | 0 ·0502 | 0 ·8307 | 7 49 27 ·25 | 245 | 326 | ·893 |
| 24 | 0 ·9339 | 1 ·2572 | 0 ·0514 | 0 ·8322 | 7 45 31 ·34 | 246 | 327 | ·895 |
| 25 | +0 ·9187 | +1 ·2611 | +0 ·0524 | +0 ·8335 | 7 41 35 ·43 | 247 | 328 | ·898 |
| 26 | 0 ·9028 | 1 ·2648 | 0 ·0536 | 0 ·8349 | 7 37 39 ·52 | 248 | 329 | ·901 |
| 27 | 0 ·8862 | 1 ·2684 | 0 ·0549 | 0 ·8362 | 7 33 43 ·61 | 249 | 330 | ·903 |
| 28 | +0 ·8688 | +1 ·2718 | +0 ·0561 | +0 ·8375 | 7 29 47 ·70 | 250 | 331 | ·906 |
| 29 | 0 ·8505 | 1 ·2750 | 0 ·0573 | 0 ·8388 | 7 25 51 ·79 | 251 | 332 | ·909 |
| 30 | 0 ·8313 | 1 ·2781 | 0 ·0585 | 0 ·8400 | 7 21 55 ·88 | 252 | 333 | ·912 |
| 31 | +0 ·8110 | +1 ·2810 | +0 ·0597 | +0 ·8412 | 7 17 59 ·97 | 253 | 334 | ·914 |

## AT APPARENT NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | Diff. for 1 hour. | Apparent Declination. | Diff. for 1 hour. | Sidereal Time of the Semidiam. passing the Meridian.* | Equation of Time, to be subt. from / added to Apparent Time. |
|---|---|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ | m s | m s |
| Mon. | 1 | 16 30 4 ·17 | 10 ·823 | S. 21 50 53 ·5 | 22 ·65 | 1 10 ·22 | 10 42 ·15 |
| Tues. | 2 | 16 34 23 ·93 | 10 ·849 | 21 59 57 ·1 | 21 ·59 | 1 10 ·31 | 10 19 ·01 |
| Wed. | 3 | 16 38 44 ·30 | 10 ·873 | 22 8 35 ·2 | 20 ·52 | 1 10 ·39 | 9 55 ·26 |
| Thur. | 4 | 16 43 5 ·25 | 10 ·896 | 22 16 47 ·6 | 19 ·43 | 1 10 ·47 | 9 30 ·93 |
| Frid. | 5 | 16 47 26 ·75 | 10 ·918 | 22 24 34 ·0 | 18 ·34 | 1 10 ·54 | 9 6 ·06 |
| Sat. | 6 | 16 51 48 ·77 | 10 ·938 | 22 31 54 ·2 | 17 ·24 | 1 10 ·61 | 8 40 ·67 |
| *Sun.* | 7 | 16 56 11 ·29 | 10 ·958 | 22 38 48 ·0 | 16 ·13 | 1 10 ·68 | 8 14 ·78 |
| Mon. | 8 | 17 0 34 ·28 | 10 ·977 | 22 45 15 ·0 | 15 ·01 | 1 10 ·74 | 7 48 ·41 |
| Tues. | 9 | 17 4 57 ·72 | 10 ·994 | 22 51 15 ·2 | 13 ·88 | 1 10 ·80 | 7 21 ·60 |
| Wed. | 10 | 17 9 21 ·57 | 11 ·010 | 22 56 48 ·4 | 12 ·75 | 1 10 ·86 | 6 54 ·38 |
| Thur. | 11 | 17 13 45 ·82 | 11 ·025 | 23 1 54 ·3 | 11 ·60 | 1 10 ·91 | 6 26 ·77 |
| Frid. | 12 | 17 18 10 ·43 | 11 ·039 | 23 6 32 ·7 | 10 ·45 | 1 10 ·96 | 5 58 ·79 |
| Sat. | 13 | 17 22 35 ·37 | 11 ·052 | 23 10 43 ·6 | 9 ·30 | 1 11 ·00 | 5 30 ·49 |
| *Sun.* | 14 | 17 27 0 ·62 | 11 ·064 | 23 14 26 ·9 | 8 ·14 | 1 11 ·04 | 5 1 ·87 |
| Mon. | 15 | 17 31 26 ·16 | 11 ·075 | 23 17 42 ·3 | 6 ·97 | 1 11 ·08 | 4 32 ·97 |
| Tues. | 16 | 17 35 51 ·95 | 11 ·084 | 23 20 29 ·6 | 5 ·81 | 1 11 ·11 | 4 3 ·82 |
| Wed. | 17 | 17 40 17 ·96 | 11 ·092 | 23 22 49 ·0 | 4 ·63 | 1 11 ·14 | 3 34 ·44 |
| Thur. | 18 | 17 44 44 ·17 | 11 ·099 | 23 24 40 ·2 | 3 ·46 | 1 11 ·16 | 3 4 ·87 |
| Frid. | 19 | 17 49 10 ·54 | 11 ·104 | 23 26 3 ·2 | 2 ·28 | 1 11 ·18 | 2 35 ·15 |
| Sat. | 20 | 17 53 37 ·04 | 11 ·108 | 23 26 57 ·9 | 1 ·10 | 1 11 ·19 | 2 5 ·28 |
| *Sun.* | 21 | 17 58 3 ·64 | 11 ·111 | 23 27 24 ·4 | 0 ·08 | 1 11 ·20 | 1 35 ·32 |
| Mon. | 22 | 18 2 30 ·30 | 11 ·112 | 23 27 22 ·4 | 1 ·26 | 1 11 ·20 | 1 5 ·30 |
| Tues. | 23 | 18 6 57 ·00 | 11 ·112 | 23 26 52 ·2 | 2 ·44 | 1 11 ·20 | 0 35 ·24 |
| Wed. | 24 | 18 11 23 ·69 | 11 ·110 | 23 25 53 ·6 | 3 ·62 | 1 11 ·19 | 0 5 ·19 |
| Thur. | 25 | 18 15 50 ·32 | 11 ·107 | 23 24 26 ·7 | 4 ·80 | 1 11 ·18 | 0 24 ·80 |
| Frid. | 26 | 18 20 16 ·88 | 11 ·102 | 23 22 31 ·5 | 5 ·98 | 1 11 ·17 | 0 54 ·72 |
| Sat. | 27 | 18 24 43 ·32 | 11 ·095 | 23 20 8 ·1 | 7 ·15 | 1 11 ·15 | 1 24 ·53 |
| *Sun.* | 28 | 18 29 9 ·61 | 11 ·087 | 23 17 16 ·5 | 8 ·32 | 1 11 ·12 | 1 54 ·17 |
| Mon. | 29 | 18 33 35 ·70 | 11 ·077 | 23 13 56 ·9 | 9 ·48 | 1 11 ·09 | 2 23 ·63 |
| Tues. | 30 | 18 38 1 ·55 | 11 ·066 | 23 10 9 ·4 | 10 ·64 | 1 11 ·06 | 2 52 ·84 |
| Wed. | 31 | 18 42 27 ·13 | 11 ·054 | 23 5 54 ·0 | 11 ·79 | 1 11 ·02 | 3 21 ·79 |
| Thur. | 32 | 18 46 52 ·42 | | S. 23 1 11 ·0 | | 1 10 ·98 | 3 50 ·44 |

* *Mean* Time of the Semidiameter passing may be found by subtracting 0s·19 from the *Sidere*

## AT MEAN NOON.

| Day of the Week. | Day of the Month. | THE SUN'S Apparent Right Ascension. | THE SUN'S Apparent Declination. | THE SUN'S Semidiam.* | Equation of Time, to be added to / subt. from Mean Time. | Sidereal Time. |
|---|---|---|---|---|---|---|
| | | h m s | ° ′ ″ | ′ ″ | m s | h m s |
| on. | 1 | 16 30 6·10 | S. 21 50 57·5 | 16 15·0 | 10 41·98 | 16 40 48·08 |
| es. | 2 | 16 34 25·80 | 22 0 0·8 | 16 15·1 | 10 18·84 | 16 44 44·63 |
| ed. | 3 | 16 38 46·10 | 22 8 38·6 | 16 15·3 | 9 55·10 | 16 48 41·19 |
| ur. | 4 | 16 43 6·98 | 22 16 50·7 | 16 15·4 | 9 30·77 | 16 52 37·75 |
| d. | 5 | 16 47 28·40 | 22 24 36·8 | 16 15·5 | 9 5·90 | 16 56 34·30 |
| . | 6 | 16 51 50·35 | 22 31 56·7 | 16 15·7 | 8 40·51 | 17 0 30·86 |
| n. | 7 | 16 56 12·79 | 22 38 50·2 | 16 15·8 | 8 14·62 | 17 4 27·42 |
| n. | 8 | 17 0 35·71 | 22 45 17·0 | 16 15·9 | 7 48·27 | 17 8 23·98 |
| es. | 9 | 17 4 59·07 | 22 51 17·0 | 16 16·0 | 7 21·47 | 17 12 20·53 |
| ed. | 10 | 17 9 22·84 | 22 56 49·9 | 16 16·2 | 6 54·25 | 17 16 17·09 |
| ur. | 11 | 17 13 47·00 | 23 1 55·5 | 16 16·3 | 6 26·64 | 17 20 13·65 |
| id. | 12 | 17 18 11·53 | 23 6 33·8 | 16 16·4 | 5 58·68 | 17 24 10·20 |
| t. | 13 | 17 22 36·38 | 23 10 44·5 | 16 16·5 | 5 30·38 | 17 28 6·76 |
| n. | 14 | 17 27 1·55 | 23 14 27·6 | 16 16·6 | 5 1·77 | 17 32 3·32 |
| n. | 15 | 17 31 27·00 | 23 17 42·8 | 16 16·6 | 4 32·88 | 17 35 59·88 |
| es. | 16 | 17 35 52·70 | 23 20 30·0 | 16 16·7 | 4 3·74 | 17 39 56·43 |
| ed. | 17 | 17 40 18·62 | 23 22 49·3 | 16 16·8 | 3 34·37 | 17 43 52·99 |
| ur. | 18 | 17 44 44·74 | 23 24 40·4 | 16 16·8 | 3 4·81 | 17 47 49·55 |
| id. | 19 | 17 49 11·01 | 23 26 3·3 | 16 16·9 | 2 35·09 | 17 51 46·11 |
| t. | 20 | 17 53 37·42 | 23 26 58·0 | 16 17·0 | 2 5·24 | 17 55 42·66 |
| n. | 21 | 17 58 3·93 | 23 27 24·4 | 16 17·0 | 1 35·29 | 17 59 39·22 |
| on. | 22 | 18 2 30·50 | 23 27 22·4 | 16 17·1 | 1 5·27 | 18 3 35·78 |
| es. | 23 | 18 6 57·11 | 23 26 52·1 | 16 17·1 | 0 35·23 | 18 7 32·34 |
| ed. | 24 | 18 11 23·70 | 23 25 53·6 | 16 17·1 | 0 5·19 | 18 11 28·89 |
| ur. | 25 | 18 15 50·25 | 23 24 26·7 | 16 17·2 | 0 24·80 | 18 15 25·45 |
| id. | 26 | 18 20 16·71 | 23 22 31·6 | 16 17·2 | 0 54·71 | 18 19 22·01 |
| t. | 27 | 18 24 43·06 | 23 20 8·2 | 16 17·2 | 1 24·50 | 18 23 18·56 |
| n. | 28 | 18 29 9·25 | 23 17 16·8 | 16 17·2 | 1 54·13 | 18 27 15·12 |
| on. | 29 | 18 33 35·25 | 23 13 57·3 | 16 17·3 | 2 23·58 | 18 31 11·68 |
| es. | 30 | 18 38 1·02 | 23 10 9·9 | 16 17·3 | 2 52·78 | 18 35 8·24 |
| ed. | 31 | 18 42 26·52 | 23 5 54·7 | 16 17·3 | 3 21·72 | 18 39 4·79 |
| ur. | 32 | 18 46 51·72 | S. 23 1 11·8 | 16 17·3 | 3 50·37 | 18 43 1·35 |

*The Semidiameter for *Apparent* Noon may be assumed the same as that for *Mean* Noon.

## MEAN TIME.

| Day of the Month. | THE SUN'S *Apparent* Longitude. *Noon.* | THE SUN'S *Apparent* Latitude. *Noon.* | Logarithm of the Radius Vector of the Earth. *Noon.* | THE MOON'S Semidiameter. *Noon.* | THE MOON'S Semidiameter. *Midnight.* | THE MOON'S Horizontal Parallax. *Noon.* | THE MOON'S Horizontal Parallax. *Midnight.* |
|---|---|---|---|---|---|---|---|
| | ° ′ ″ | ″ | | ′ ″ | ′ ″ | ′ ″ | ′ |
| 1 | 249 13 4 ·8 | N.0 ·47 | 9 ·9936954 | 16 31 ·5 | 16 30 ·3 | 60 38 ·4 | 60 3 |
| 2 | 250 13 59 ·1 | 0 ·54 | 9 ·9936294 | 16 28 ·2 | 16 25 ·2 | 60 26 ·6 | 60 1 |
| 3 | 251 14 54 ·3 | 0 ·58 | 9 ·9935649 | 16 21 ·5 | 16 17 ·1 | 60 1 ·7 | 59 4 |
| 4 | 252 15 50 ·4 | 0 ·59 | 9 ·9935019 | 16 12 ·2 | 16 6 ·9 | 59 27 ·6 | 59 |
| 5 | 253 16 47 ·1 | 0 ·57 | 9 ·9934406 | 16 1 ·5 | 15 56 ·0 | 58 48 ·4 | 58 2 |
| 6 | 254 17 44 ·5 | 0 ·52 | 9 ·9933811 | 15 50 ·4 | 15 44 ·8 | 58 7 ·5 | 57 4 |
| 7 | 255 18 42 ·6 | 0 ·44 | 9 ·9933236 | 15 39 ·5 | 15 34 ·3 | 57 27 ·6 | 57 |
| 8 | 256 19 41 ·3 | 0 ·33 | 9 ·9932682 | 15 29 ·2 | 15 24 ·5 | 56 50 ·0 | 56 3 |
| 9 | 257 20 40 ·6 | 0 ·21 | 9 ·9932151 | 15 20 ·0 | 15 15 ·6 | 56 16 ·0 | 56 |
| 10 | 258 21 40 ·5 | N.0 ·08 | 9 ·9931646 | 15 11 ·5 | 15 7 ·7 | 55 45 ·0 | 55 3 |
| 11 | 259 22 41 ·0 | S.0 ·05 | 9 ·9931166 | 15 4 ·1 | 15 0 ·7 | 55 17 ·8 | 55 |
| 12 | 260 23 42 ·1 | 0 ·18 | 9 ·9930712 | 14 57 ·6 | 14 54 ·8 | 54 54 ·0 | 54 4 |
| 13 | 261 24 43 ·8 | 0 ·31 | 9 ·9930284 | 14 52 ·2 | 14 49 ·8 | 54 34 ·0 | 54 2 |
| 14 | 262 25 46 ·2 | 0 ·42 | 9 ·9929883 | 14 47 ·8 | 14 46 ·1 | 54 17 ·8 | 54 1 |
| 15 | 263 26 49 ·3 | 0 ·51 | 9 ·9929509 | 14 44 ·7 | 14 43 ·6 | 54 6 ·5 | 54 |
| 16 | 264 27 53 ·0 | 0 ·57 | 9 ·9929164 | 14 43 ·0 | 14 42 ·8 | 54 0 ·3 | 53 5 |
| 17 | 265 28 57 ·5 | 0 ·60 | 9 ·9928845 | 14 43 ·0 | 14 43 ·8 | 54 0 ·5 | 54 |
| 18 | 266 30 2 ·8 | 0 ·61 | 9 ·9928552 | 14 45 ·1 | 14 46 ·9 | 54 7 ·9 | 54 1 |
| 19 | 267 31 8 ·7 | 0 ·58 | 9 ·9928285 | 14 49 ·4 | 14 52 ·4 | 54 23 ·7 | 54 3 |
| 20 | 268 32 15 ·4 | 0 ·53 | 9 ·9928043 | 14 56 ·1 | 15 0 ·4 | 54 48 ·3 | 55 |
| 21 | 269 33 22 ·9 | 0 ·45 | 9 ·9927825 | 15 5 ·4 | 15 11 ·0 | 55 22 ·5 | 55 4 |
| 22 | 270 34 31 ·0 | 0 ·34 | 9 ·9927628 | 15 17 ·2 | 15 24 ·0 | 56 6 ·0 | 56 3 |
| 23 | 271 35 39 ·8 | 0 ·22 | 9 ·9927453 | 15 31 ·3 | 15 38 ·9 | 56 57 ·6 | 57 2 |
| 24 | 272 36 49 ·2 | S.0 ·10 | 9 ·9927298 | 15 46 ·7 | 15 54 ·8 | 57 54 ·3 | 58 2 |
| 25 | 273 37 59 ·0 | N.0 ·03 | 9 ·9927162 | 16 2 ·7 | 16 10 ·4 | 58 52 ·8 | 59 2 |
| 26 | 274 39 9 ·3 | 0 ·16 | 9 ·9927042 | 16 17 ·7 | 16 24 ·3 | 59 47 ·7 | 60 1 |
| 27 | 275 40 20 ·0 | 0 ·27 | 9 ·9926939 | 16 30 ·0 | 16 34 ·8 | 60 33 ·2 | 60 5 |
| 28 | 276 41 30 ·9 | 0 ·37 | 9 ·9926854 | 16 38 ·4 | 16 40 ·7 | 61 3 ·7 | 61 1 |
| 29 | 277 42 42 ·0 | 0 ·44 | 9 ·9926786 | 16 41 ·7 | 16 41 ·3 | 61 15 ·9 | 61 1 |
| 30 | 278 43 53 ·1 | 0 ·48 | 9 ·9926735 | 16 39 ·6 | 16 36 ·6 | 61 8 ·3 | 60 5 |
| 31 | 279 45 4 ·2 | 0 ·50 | 9 ·9926701 | 16 32 ·6 | 16 27 ·5 | 60 42 ·4 | 60 2 |
| 32 | 280 46 15 ·3 | N.0 ·49 | 9 ·9926683 | 16 21 ·6 | 16 15 ·2 | 60 2 ·3 | 59 3 |

## MEAN TIME.

| Day of the Month. | THE MOON'S Longitude. Noon. | Longitude. Midnight. | Latitude. Noon. | Latitude. Midnight. | Age. Noon. | Meridian Passage. |
|---|---|---|---|---|---|---|
| | ° ′ ″ | ° ′ ″ | ° ′ ″ | ° ′ ″ | d | h m |
| 1 | 277 3 39 ·9 | 284 30 47 ·0 | N.4 3 13 ·5 | N.4 26 57 ·8 | 2 ·0 | 1 53 ·7 |
| 2 | 291 56 30 ·8 | 299 19 55 ·3 | 4 46 6 ·5 | 5 0 23 ·1 | 3 ·0 | 2 53 ·7 |
| 3 | 306 40 11 ·3 | 313 56 37 ·7 | 5 9 37 ·0 | 5 13 46 ·1 | 4 ·0 | 3 50 ·9 |
| 4 | 321 8 42 ·0 | 328 16 0 ·8 | 5 12 55 ·1 | 5 7 14 ·0 | 5 ·0 | 4 44 ·8 |
| 5 | 335 18 19 ·1 | 342 15 29 ·7 | 4 56 58 ·1 | 4 42 26 ·5 | 6 ·0 | 5 36 ·0 |
| 6 | 349 7 32 ·1 | 355 54 31 ·9 | 4 24 1 ·1 | 4 2 5 ·8 | 7 ·0 | 6 25 ·2 |
| 7 | 2 36 39 ·4 | 9 14 7 ·7 | 3 37 6 ·3 | 3 9 28 ·0 | 8 ·0 | 7 13 ·3 |
| 8 | 15 47 13 ·0 | 22 16 12 ·6 | 2 39 39 ·0 | 2 8 4 ·7 | 9 ·0 | 8 1 ·1 |
| 9 | 28 41 24 ·6 | 35 3 6 ·8 | 1 35 12 ·0 | N.1 1 27 ·2 | 10 ·0 | 8 49 ·1 |
| 10 | 41 21 36 ·5 | 47 37 9 ·8 | N.0 27 15 ·3 | S.0 6 58 ·7 | 11 ·0 | 9 37 ·8 |
| 11 | 53 50 1 ·7 | 60 0 25 ·6 | S.0 40 50 ·7 | 1 13 58 ·5 | 12 ·0 | 10 27 ·1 |
| 12 | 66 8 33 ·9 | 72 14 37 ·5 | 1 45 59 ·9 | 2 16 34 ·5 | 13 ·0 | 11 16 ·7 |
| 13 | 78 18 46 ·8 | 84 21 11 ·6 | 2 45 24 ·0 | 3 12 11 ·4 | 14 ·0 | 12 6 ·1 |
| 14 | 90 22 1 ·7 | 96 21 27 ·0 | 3 36 40 ·8 | 3 58 38 ·9 | 15 ·0 | 12 54 ·6 |
| 15 | 102 19 38 ·5 | 108 16 48 ·1 | 4 17 54 ·2 | 4 34 16 ·3 | 16 ·0 | 13 41 ·8 |
| 16 | 114 13 9 ·2 | 120 8 57 ·4 | 4 47 37 ·1 | 4 57 50 ·1 | 17 ·0 | 14 27 ·5 |
| 17 | 126 4 29 ·9 | 132 0 6 ·5 | 5 4 50 ·3 | 5 8 33 ·9 | 18 ·0 | 15 11 ·8 |
| 18 | 137 56 9 ·2 | 143 53 2 ·5 | 5 8 58 ·6 | 5 6 3 ·4 | 19 ·0 | 15 55 ·0 |
| 19 | 149 51 13 ·3 | 155 51 10 ·6 | 4 59 48 ·3 | 4 50 14 ·1 | 20 ·0 | 16 37 ·7 |
| 20 | 161 53 25 ·9 | 167 58 32 ·0 | 4 37 23 ·3 | 4 21 18 ·9 | 21 ·0 | 17 20 ·6 |
| 21 | 174 7 3 ·2 | 180 19 34 ·7 | 4 2 5 ·6 | 3 39 49 ·4 | 22 ·0 | 18 4 ·7 |
| 22 | 186 36 41 ·6 | 192 58 58 ·7 | 3 14 38 ·4 | 2 46 42 ·9 | 23 ·0 | 18 50 ·8 |
| 23 | 199 26 58 ·9 | 206 1 12 ·3 | 2 16 14 ·8 | 1 43 30 ·9 | 24 ·0 | 19 40 ·0 |
| 24 | 212 42 4 ·9 | 219 29 56 ·5 | S.1 8 50 ·6 | S.0 32 37 ·0 | 25 ·0 | 20 32 ·8 |
| 25 | 226 25 0 ·2 | 233 27 19 ·0 | N.0 4 41 ·4 | N.0 42 32 ·2 | 26 ·0 | 21 29 ·7 |
| 26 | 240 36 45 ·6 | 247 53 0 ·3 | 1 20 18 ·6 | 1 57 19 ·8 | 27 ·0 | 22 30 ·2 |
| 27 | 255 15 30 ·0 | 262 43 28 ·6 | 2 32 52 ·7 | 3 6 12 ·3 | 28 ·0 | 23 32 ·7 |
| 28 | 270 15 56 ·9 | 277 51 44 ·6 | 3 36 34 ·8 | 4 3 18 ·9 | 29 ·0 | ó |
| 29 | 285 29 32 ·5 | 293 7 57 ·1 | 4 25 48 ·3 | 4 43 32 ·8 | 0 ·5 | 0 35 ·4 |
| 30 | 300 45 32 ·7 | 308 20 57 ·1 | 4 56 11 ·9 | 5 3 33 ·4 | 1 ·5 | 1 36 ·1 |
| 31 | 315 52 54 ·2 | 323 20 17 ·9 | 5 5 34 ·5 | 5 2 21 ·5 | 2 ·5 | 2 33 ·9 |
| 32 | 330 42 13 ·9 | 337 58 1 ·2 | N.4 54 8 ·5 | N.4 41 15 ·9 | 3 ·5 | 3 28 ·5 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 1. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 18 29 50·74 | S. 19 13 15·2 | 41·53 |
| 1 | 18 32 27·55 | 19 9 6·0 | 42·90 |
| 2 | 18 35 4·19 | 19 4 48·6 | 44·27 |
| 3 | 18 37 40·67 | 19 0 23·0 | 45·62 |
| 4 | 18 40 16·98 | 18 55 49·3 | 46·98 |
| 5 | 18 42 53·11 | 18 51 7·4 | 48·32 |
| 6 | 18 45 29·05 | 18 46 17·5 | 49·63 |
| 7 | 18 48 4·80 | 18 41 19·7 | 50·97 |
| 8 | 18 50 40·36 | 18 36 13·9 | 52·28 |
| 9 | 18 53 15·71 | 18 31 0·2 | 53·58 |
| 10 | 18 55 50·86 | 18 25 38·7 | 54·87 |
| 11 | 18 58 25·80 | 18 20 9·5 | 56·15 |
| 12 | 19 1 0·51 | 18 14 32·6 | 57·42 |
| 13 | 19 3 35·01 | 18 8 48·1 | 58·68 |
| 14 | 19 6 9·28 | 18 2 56·0 | 59·93 |
| 15 | 19 8 43·32 | 17 56 56·4 | 61·17 |
| 16 | 19 11 17·13 | 17 50 49·4 | 62·40 |
| 17 | 19 13 50·70 | 17 44 35·0 | 63·60 |
| 18 | 19 16 24·02 | 17 38 13·4 | 64·82 |
| 19 | 19 18 57·10 | 17 31 44·5 | 66·00 |
| 20 | 19 21 29·93 | 17 25 8·5 | 67·18 |
| 21 | 19 24 2·51 | 17 18 25·4 | 68·35 |
| 22 | 19 26 34·82 | 17 11 35·3 | 69·52 |
| 23 | 19 29 6·88 | S. 17 4 38·2 | 70·65 |
| | *TUESDAY* 2. | | |
| 0 | 19 31 38·67 | S. 16 57 34·3 | 71·78 |
| 1 | 19 34 10·19 | 16 50 23·6 | 72·90 |
| 2 | 19 36 41·44 | 16 43 6·2 | 74·00 |
| 3 | 19 39 12·42 | 16 35 42·2 | 75·10 |
| 4 | 19 41 43·12 | 16 28 11·6 | 76·17 |
| 5 | 19 44 13·54 | 16 20 34·6 | 77·25 |
| 6 | 19 46 43·68 | 16 12 51·1 | 78·28 |
| 7 | 19 49 13·54 | 16 5 1·4 | 79·32 |
| 8 | 19 51 43·10 | 15 57 5·5 | 80·35 |
| 9 | 19 54 12·39 | 15 49 3·4 | 81·37 |
| 10 | 19 56 41·38 | 15 40 55·2 | 82·35 |
| 11 | 19 59 10·08 | 15 32 41·1 | 83·33 |
| 12 | 20 1 38·48 | 15 24 21·1 | 84·30 |
| 13 | 20 4 6·59 | 15 15 55·3 | 85·25 |
| 14 | 20 6 34·40 | 15 7 23·8 | 86·20 |
| 15 | 20 9 1·92 | 14 58 46·6 | 87·12 |
| 16 | 20 11 29·14 | 14 50 3·9 | 88·03 |
| 17 | 20 13 56·06 | 14 41 15·7 | 88·92 |
| 18 | 20 16 22·68 | 14 32 22·2 | 89·82 |
| 19 | 20 18 49·00 | 14 23 23·3 | 90·67 |
| 20 | 20 21 15·02 | 14 14 19·3 | 91·53 |
| 21 | 20 23 40·74 | 14 5 10·1 | 92·38 |
| 22 | 20 26 6·16 | 13 55 55·8 | 93·20 |
| 23 | 20 28 31·27 | 13 46 36·6 | 94·02 |
| 24 | 20 30 56·09 | S. 13 37 12·5 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 3. | | |
| | h m s | ° ′ ″ | |
| 0 | 20 30 56·09 | S. 13 37 12·5 | |
| 1 | 20 33 20·60 | 13 27 43·6 | |
| 2 | 20 35 44·81 | 13 18 10·1 | |
| 3 | 20 38 8·71 | 13 8 31·9 | |
| 4 | 20 40 32·32 | 12 58 49·2 | |
| 5 | 20 42 55·62 | 12 49 2·0 | |
| 6 | 20 45 18·62 | 12 39 10·5 | |
| 7 | 20 47 41·33 | 12 29 14·7 | |
| 8 | 20 50 3·73 | 12 19 14·7 | |
| 9 | 20 52 25·84 | 12 9 10·6 | |
| 10 | 20 54 47·65 | 11 59 2·5 | |
| 11 | 20 57 9·16 | 11 48 50·5 | |
| 12 | 20 59 30·38 | 11 38 34·6 | |
| 13 | 21 1 51·31 | 11 28 15·0 | |
| 14 | 21 4 11·94 | 11 17 51·6 | |
| 15 | 21 6 32·28 | 11 7 24·7 | |
| 16 | 21 8 52·33 | 10 56 54·3 | |
| 17 | 21 11 12·10 | 10 46 20·4 | |
| 18 | 21 13 31·58 | 10 35 43·2 | |
| 19 | 21 15 50·77 | 10 25 2·8 | |
| 20 | 21 18 9·68 | 10 14 19·2 | |
| 21 | 21 20 28·31 | 10 3 32·4 | |
| 22 | 21 22 46·67 | 9 52 42·7 | |
| 23 | 21 25 4·75 | S. 9 41 50·0 | |
| | *THURSDAY* 4. | | |
| 0 | 21 27 22·54 | S. 9 30 54·5 | |
| 1 | 21 29 40·07 | 9 19 56·2 | |
| 2 | 21 31 57·33 | 9 8 55·3 | |
| 3 | 21 34 14·33 | 8 57 51·7 | |
| 4 | 21 36 31·06 | 8 46 45·6 | |
| 5 | 21 38 47·52 | 8 35 37·1 | |
| 6 | 21 41 3·73 | 8 24 26·2 | |
| 7 | 21 43 19·67 | 8 13 13·0 | |
| 8 | 21 45 35·36 | 8 1 57·6 | |
| 9 | 21 47 50·80 | 7 50 40·0 | |
| 10 | 21 50 5·99 | 7 39 20·4 | |
| 11 | 21 52 20·93 | 7 27 58·9 | |
| 12 | 21 54 35·62 | 7 16 35·4 | |
| 13 | 21 56 50·07 | 7 5 10·1 | |
| 14 | 21 59 4·29 | 6 53 43·0 | |
| 15 | 22 1 18·27 | 6 42 14·3 | |
| 16 | 22 3 32·02 | 6 30 44·0 | |
| 17 | 22 5 45·53 | 6 19 12·1 | |
| 18 | 22 7 58·82 | 6 7 38·8 | |
| 19 | 22 10 11·89 | 5 56 4·1 | |
| 20 | 22 12 24·73 | 5 44 28·1 | |
| 21 | 22 14 37·36 | 5 32 50·8 | |
| 22 | 22 16 49·77 | 5 21 12·4 | |
| 23 | 22 19 1·97 | 5 9 32·8 | |
| 24 | 22 21 13·96 | S. 4 57 52·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *FRIDAY* 5. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 22 21 13 ·96 | S. 4 57 52 ·3 | 116 ·92 |
| 1 | 22 23 25 ·74 | 4 46 10 ·8 | 117 ·07 |
| 2 | 22 25 37 ·32 | 4 34 28 ·4 | 117 ·20 |
| 3 | 22 27 48 ·71 | 4 22 45 ·2 | 117 ·33 |
| 4 | 22 29 59 ·90 | 4 11 1 ·2 | 117 ·43 |
| 5 | 22 32 10 ·89 | 3 59 16 ·6 | 117 ·55 |
| 6 | 22 34 21 ·70 | 3 47 31 ·3 | 117 ·63 |
| 7 | 22 36 32 ·32 | 3 35 45 ·5 | 117 ·70 |
| 8 | 22 38 42 ·76 | 3 23 59 ·3 | 117 ·78 |
| 9 | 22 40 53 ·01 | 3 12 12 ·6 | 117 ·83 |
| 10 | 22 43 3 ·09 | 3 0 25 ·6 | 117 ·90 |
| 11 | 22 45 13 ·00 | 2 48 38 ·2 | 117 ·92 |
| 12 | 22 47 22 ·74 | 2 36 50 ·7 | 117 ·95 |
| 13 | 22 49 32 ·31 | 2 25 3 ·0 | 117 ·95 |
| 14 | 22 51 41 ·72 | 2 13 15 ·3 | 117 ·97 |
| 15 | 22 53 50 ·98 | 2 1 27 ·5 | 117 ·95 |
| 16 | 22 56 0 ·07 | 1 49 39 ·8 | 117 ·95 |
| 17 | 22 58 9 ·01 | 1 37 52 ·1 | 117 ·90 |
| 18 | 23 0 17 ·81 | 1 26 4 ·7 | 117 ·88 |
| 19 | 23 2 26 ·46 | 1 14 17 ·4 | 117 ·82 |
| 20 | 23 4 34 ·96 | 1 2 30 ·5 | 117 ·77 |
| 21 | 23 6 43 ·33 | 0 50 43 ·9 | 117 ·70 |
| 22 | 23 8 51 ·56 | 0 38 57 ·7 | 117 ·62 |
| 23 | 23 10 59 ·65 | S. 0 27 12 ·0 | 117 ·53 |
| | *SATURDAY* 6. | | |
| 0 | 23 13 7 ·62 | S. 0 15 26 ·8 | 117 ·43 |
| 1 | 23 15 15 ·46 | S. 0 3 42 ·2 | 117 ·32 |
| 2 | 23 17 23 ·18 | N. 0 8 1 ·7 | 117 ·20 |
| 3 | 23 19 30 ·78 | 0 19 44 ·9 | 117 ·08 |
| 4 | 23 21 38 ·27 | 0 31 27 ·4 | 116 ·93 |
| 5 | 23 23 45 ·64 | 0 43 9 ·0 | 116 ·80 |
| 6 | 23 25 52 ·91 | 0 54 49 ·8 | 116 ·63 |
| 7 | 23 28 0 ·06 | 1 6 29 ·6 | 116 ·47 |
| 8 | 23 30 7 ·12 | 1 18 8 ·4 | 116 ·30 |
| 9 | 23 32 14 ·08 | 1 29 46 ·2 | 116 ·12 |
| 10 | 23 34 20 ·94 | 1 41 22 ·9 | 115 ·92 |
| 11 | 23 36 27 ·71 | 1 52 58 ·4 | 115 ·72 |
| 12 | 23 38 34 ·39 | 2 4 32 ·7 | 115 ·50 |
| 13 | 23 40 40 ·98 | 2 16 5 ·7 | 115 ·30 |
| 14 | 23 42 47 ·49 | 2 27 37 ·5 | 115 ·05 |
| 15 | 23 44 53 ·92 | 2 39 7 ·8 | 114 ·82 |
| 16 | 23 47 0 ·28 | 2 50 36 ·7 | 114 ·57 |
| 17 | 23 49 6 ·56 | 3 2 4 ·1 | 114 ·32 |
| 18 | 23 51 12 ·76 | 3 13 30 ·0 | 114 ·03 |
| 19 | 23 53 18 ·91 | 3 24 54 ·2 | 113 ·78 |
| 20 | 23 55 24 ·98 | 3 36 16 ·9 | 113 ·48 |
| 21 | 23 57 31 ·00 | 3 47 37 ·8 | 113 ·20 |
| 22 | 23 59 36 ·96 | 3 58 57 ·0 | 112 ·88 |
| 23 | 0 1 42 ·86 | 4 10 14 ·3 | 112 ·58 |
| 24 | 0 3 48 ·71 | N. 4 21 29 ·8 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *SUNDAY* 7. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 0 3 48 ·71 | N. 4 21 29 ·8 | 112 ·27 |
| 1 | 0 5 54 ·51 | 4 32 43 ·4 | 111 ·93 |
| 2 | 0 8 0 ·26 | 4 43 55 ·0 | 111 ·60 |
| 3 | 0 10 5 ·98 | 4 55 4 ·6 | 111 ·25 |
| 4 | 0 12 11 ·65 | 5 6 12 ·1 | 110 ·90 |
| 5 | 0 14 17 ·28 | 5 17 17 ·5 | 110 ·55 |
| 6 | 0 16 22 ·88 | 5 28 20 ·8 | 110 ·18 |
| 7 | 0 18 28 ·44 | 5 39 21 ·9 | 109 ·80 |
| 8 | 0 20 33 ·98 | 5 50 20 ·7 | 109 ·42 |
| 9 | 0 22 39 ·49 | 6 1 17 ·2 | 109 ·03 |
| 10 | 0 24 44 ·98 | 6 12 11 ·4 | 108 ·63 |
| 11 | 0 26 50 ·44 | 6 23 3 ·2 | 108 ·22 |
| 12 | 0 28 55 ·89 | 6 33 52 ·5 | 107 ·82 |
| 13 | 0 31 1 ·32 | 6 44 39 ·4 | 107 ·38 |
| 14 | 0 33 6 ·74 | 6 55 23 ·7 | 106 ·97 |
| 15 | 0 35 12 ·14 | 7 6 5 ·5 | 106 ·52 |
| 16 | 0 37 17 ·54 | 7 16 44 ·6 | 106 ·07 |
| 17 | 0 39 22 ·93 | 7 27 21 ·0 | 105 ·63 |
| 18 | 0 41 28 ·32 | 7 37 54 ·8 | 105 ·15 |
| 19 | 0 43 33 ·71 | 7 48 25 ·7 | 104 ·70 |
| 20 | 0 45 39 ·10 | 7 58 53 ·9 | 104 ·20 |
| 21 | 0 47 44 ·49 | 8 9 19 ·1 | 103 ·73 |
| 22 | 0 49 49 ·89 | 8 19 41 ·5 | 103 ·23 |
| 23 | 0 51 55 ·30 | N. 8 30 0 ·9 | 102 ·73 |
| | *MONDAY* 8. | | |
| 0 | 0 54 0 ·73 | N. 8 40 17 ·3 | 102 ·22 |
| 1 | 0 56 6 ·16 | 8 50 30 ·6 | 101 ·72 |
| 2 | 0 58 11 ·61 | 9 0 40 ·9 | 101 ·18 |
| 3 | 1 0 17 ·08 | 9 10 48 ·0 | 100 ·67 |
| 4 | 1 2 22 ·56 | 9 20 52 ·0 | 100 ·12 |
| 5 | 1 4 28 ·07 | 9 30 52 ·7 | 99 ·57 |
| 6 | 1 6 33 ·60 | 9 40 50 ·1 | 99 ·03 |
| 7 | 1 8 39 ·15 | 9 50 44 ·3 | 98 ·45 |
| 8 | 1 10 44 ·74 | 10 0 35 ·0 | 97 ·90 |
| 9 | 1 12 50 ·35 | 10 10 22 ·4 | 97 ·33 |
| 10 | 1 14 56 ·00 | 10 20 6 ·4 | 96 ·73 |
| 11 | 1 17 1 ·67 | 10 29 46 ·8 | 96 ·17 |
| 12 | 1 19 7 ·39 | 10 39 23 ·8 | 95 ·57 |
| 13 | 1 21 13 ·14 | 10 48 57 ·2 | 94 ·97 |
| 14 | 1 23 18 ·92 | 10 58 27 ·0 | 94 ·35 |
| 15 | 1 25 24 ·75 | 11 7 53 ·1 | 93 ·75 |
| 16 | 1 27 30 ·62 | 11 17 15 ·6 | 93 ·12 |
| 17 | 1 29 36 ·53 | 11 26 34 ·3 | 92 ·48 |
| 18 | 1 31 42 ·48 | 11 35 49 ·2 | 91 ·87 |
| 19 | 1 33 48 ·48 | 11 45 0 ·4 | 91 ·22 |
| 20 | 1 35 54 ·53 | 11 54 7 ·7 | 90 ·57 |
| 21 | 1 38 0 ·63 | 12 3 11 ·1 | 89 ·92 |
| 22 | 1 40 6 ·77 | 12 12 10 ·6 | 89 ·27 |
| 23 | 1 42 12 ·97 | 12 21 6 ·2 | 88 ·58 |
| 24 | 1 44 19 ·22 | N. 12 29 57 ·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *TUESDAY* 9. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 1 44 19·22 | N.12 29 57·7 | 87·92 |
| 1 | 1 46 25·52 | 12 38 45·2 | 87·23 |
| 2 | 1 48 31·88 | 12 47 28·6 | 86·55 |
| 3 | 1 50 38·29 | 12 56 7·9 | 85·87 |
| 4 | 1 52 44·76 | 13 4 43·1 | 85·15 |
| 5 | 1 54 51·28 | 13 13 14·0 | 84·47 |
| 6 | 1 56 57·86 | 13 21 40·8 | 83·73 |
| 7 | 1 59 4·50 | 13 30 3·2 | 83·02 |
| 8 | 2 1 11·20 | 13 38 21·3 | 82·30 |
| 9 | 2 3 17·96 | 13 46 35·1 | 81·57 |
| 10 | 2 5 24·78 | 13 54 44·5 | 80·83 |
| 11 | 2 7 31·67 | 14 2 49·5 | 80·10 |
| 12 | 2 9 38·61 | 14 10 50·1 | 79·33 |
| 13 | 2 11 45·62 | 14 18 46·1 | 78·60 |
| 14 | 2 13 52·69 | 14 26 37·7 | 77·82 |
| 15 | 2 15 59·83 | 14 34 24·6 | 77·07 |
| 16 | 2 18 7·03 | 14 42 7·0 | 76·28 |
| 17 | 2 20 14·30 | 14 49 44·7 | 75·52 |
| 18 | 2 22 21·63 | 14 57 17·8 | 74·72 |
| 19 | 2 24 29·02 | 15 4 46·1 | 73·95 |
| 20 | 2 26 36·49 | 15 12 9·8 | 73·15 |
| 21 | 2 28 44·01 | 15 19 28·7 | 72·33 |
| 22 | 2 30 51·60 | 15 26 42·7 | 71·55 |
| 23 | 2 32 59·26 | N.15 33 52·0 | 70·73 |
| | *WEDNESDAY* 10. | | |
| 0 | 2 35 6·98 | N.15 40 56·4 | 69·92 |
| 1 | 2 37 14·77 | 15 47 55·9 | 69·10 |
| 2 | 2 39 22·62 | 15 54 50·5 | 68·27 |
| 3 | 2 41 30·53 | 16 1 40·1 | 67·45 |
| 4 | 2 43 38·52 | 16 8 24·8 | 66·62 |
| 5 | 2 45 46·57 | 16 15 4·5 | 65·77 |
| 6 | 2 47 54·68 | 16 21 39·1 | 64·92 |
| 7 | 2 50 2·85 | 16 28 8·6 | 64·08 |
| 8 | 2 52 11·09 | 16 34 33·1 | 63·22 |
| 9 | 2 54 19·38 | 16 40 52·4 | 62·35 |
| 10 | 2 56 27·74 | 16 47 6·5 | 61·50 |
| 11 | 2 58 36·17 | 16 53 15·5 | 60·63 |
| 12 | 3 0 44·65 | 16 59 19·3 | 59·77 |
| 13 | 3 2 53·19 | 17 5 17·9 | 58·87 |
| 14 | 3 5 1·79 | 17 11 11·1 | 58·00 |
| 15 | 3 7 10·45 | 17 16 59·1 | 57·12 |
| 16 | 3 9 19·17 | 17 22 41·8 | 56·23 |
| 17 | 3 11 27·94 | 17 28 19·2 | 55·32 |
| 18 | 3 13 36·77 | 17 33 51·1 | 54·43 |
| 19 | 3 15 45·65 | 17 39 17·7 | 53·53 |
| 20 | 3 17 54·39 | 17 44 38·9 | 52·62 |
| 21 | 3 20 3·38 | 17 49 54·6 | 51·72 |
| 22 | 3 22 12·61 | 17 55 4·9 | 50·80 |
| 23 | 3 24 21·70 | 18 0 9·7 | 49·88 |
| 24 | 3 26 30·84 | N.18 5 9·0 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *THURSDAY* 11. | |
| | h m s | ° ′ ″ |
| 0 | 3 26 30·84 | N.18 5 9·0 |
| 1 | 3 28 40·03 | 18 10 2·7 |
| 2 | 3 30 49·26 | 18 14 50·9 |
| 3 | 3 32 58·53 | 18 19 33·6 |
| 4 | 3 35 7·85 | 18 24 10·6 |
| 5 | 3 37 17·21 | 18 28 42·0 |
| 6 | 3 39 26·61 | 18 33 7·8 |
| 7 | 3 41 36·05 | 18 37 28·0 |
| 8 | 3 43 45·52 | 18 41 42·5 |
| 9 | 3 45 55·03 | 18 45 51·3 |
| 10 | 3 48 4·57 | 18 49 54·5 |
| 11 | 3 50 14·14 | 18 53 51·9 |
| 12 | 3 52 23·75 | 18 57 43·6 |
| 13 | 3 54 33·38 | 19 1 29·6 |
| 14 | 3 56 43·04 | 19 5 9·8 |
| 15 | 3 58 52·72 | 19 8 44·2 |
| 16 | 4 1 2·43 | 19 12 12·9 |
| 17 | 4 3 12·16 | 19 15 35·8 |
| 18 | 4 5 21·90 | 19 18 52·8 |
| 19 | 4 7 31·66 | 19 22 4·1 |
| 20 | 4 9 41·44 | 19 25 9·5 |
| 21 | 4 11 51·22 | 19 28 9·1 |
| 22 | 4 14 1·02 | 19 31 2·8 |
| 23 | 4 16 10·82 | N.19 33 50·7 |
| | *FRIDAY* 12. | |
| 0 | 4 18 20·63 | N.19 36 32·7 |
| 1 | 4 20 30·45 | 19 39 8·8 |
| 2 | 4 22 40·26 | 19 41 39·1 |
| 3 | 4 24 50·08 | 19 44 3·5 |
| 4 | 4 26 59·89 | 19 46 21·9 |
| 5 | 4 29 9·70 | 19 48 34·5 |
| 6 | 4 31 19·50 | 19 50 41·2 |
| 7 | 4 33 29·29 | 19 52 41·9 |
| 8 | 4 35 39·07 | 19 54 36·7 |
| 9 | 4 37 48·84 | 19 56 25·6 |
| 10 | 4 39 58·59 | 19 58 8·6 |
| 11 | 4 42 8·32 | 19 59 45·7 |
| 12 | 4 44 18·03 | 20 1 16·8 |
| 13 | 4 46 27·72 | 20 2 42·0 |
| 14 | 4 48 37·37 | 20 4 1·3 |
| 15 | 4 50 47·00 | 20 5 14·6 |
| 16 | 4 52 56·60 | 20 6 22·0 |
| 17 | 4 55 6·17 | 20 7 23·5 |
| 18 | 4 57 15·70 | 20 8 19·0 |
| 19 | 4 59 25·19 | 20 9 8·7 |
| 20 | 5 1 34·65 | 20 9 52·4 |
| 21 | 5 3 44·06 | 20 10 30·2 |
| 22 | 5 5 53·42 | 20 11 2·0 |
| 23 | 5 8 2·74 | 20 11 28·0 |
| 24 | 5 10 12·02 | N.20 11 48·1 |

## MEAN TIME.

### HE MOON'S RIGHT ASCENSION AND DECLINATION.

| Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *SATURDAY* 13. | | |
| m s | ° ′ ″ | ″ |
| ) 12 ·02 | N.20 11 48 ·1 | 2 ·37 |
| 21 ·24 | 20 12 2 ·3 | 1 ·37 |
| 30 ·40 | 20 12 10 ·5 | 0 ·40 |
| ) 39 ·50 | 20 12 12 ·9 | 0 ·57 |
| 48 ·55 | 20 12 9 ·5 | 1 ·57 |
| ) 57 ·53 | 20 12 0 ·1 | 2 ·53 |
| 6 ·45 | 20 11 44 ·9 | 3 ·50 |
| 15 ·30 | 20 11 23 ·9 | 4 ·48 |
| 24 ·08 | 20 10 57 ·0 | 5 ·45 |
| ) 32 ·80 | 20 10 24 ·3 | 6 ·42 |
| 41 ·44 | 20 9 45 ·8 | 7 ·38 |
| 50 ·00 | 20 9 1 ·5 | 8 ·35 |
| 58 ·49 | 20 8 11 ·4 | 9 ·32 |
| 6 ·90 | 20 7 15 ·5 | 10 ·27 |
| 15 ·22 | 20 6 13 ·9 | 11 ·23 |
| 23 ·47 | 20 5 6 ·5 | 12 ·18 |
| 31 ·62 | 20 3 53 ·4 | 13 ·13 |
| 39 ·69 | 20 2 34 ·6 | 14 ·08 |
| 47 ·67 | 20 1 10 ·1 | 15 ·03 |
| 55 ·55 | 19 59 39 ·9 | 15 ·98 |
| 3 ·34 | 19 58 4 ·0 | 16 ·92 |
| 11 ·04 | 19 56 22 ·5 | 17 ·87 |
| 18 ·63 | 19 54 35 ·3 | 18 ·80 |
| 26 ·12 | N.19 52 42 ·5 | 19 ·73 |
| *SUNDAY* 14. | | |
| 33 ·49 | N.19 50 44 ·1 | 20 ·67 |
| 40 ·77 | 19 48 40 ·1 | 21 ·58 |
| 47 ·95 | 19 46 30 ·6 | 22 ·52 |
| 55 ·02 | 19 44 15 ·5 | 23 ·43 |
| 1 ·98 | 19 41 54 ·9 | 24 ·35 |
| 8 ·82 | 19 39 28 ·8 | 25 ·27 |
| 15 ·56 | 19 36 57 ·2 | 26 ·18 |
| 22 ·17 | 19 34 20 ·1 | 27 ·08 |
| 28 ·67 | 19 31 37 ·6 | 27 ·98 |
| 35 ·05 | 19 28 49 ·7 | 28 ·88 |
| 41 ·31 | 19 25 56 ·4 | 29 ·78 |
| 47 ·45 | 19 22 57 ·7 | 30 ·67 |
| 53 ·46 | 19 19 53 ·7 | 31 ·57 |
| 59 ·35 | 19 16 44 ·3 | 32 ·43 |
| 5 ·12 | 19 13 29 ·7 | 33 ·32 |
| 10 ·75 | 19 10 9 ·8 | 34 ·20 |
| 16 ·26 | 19 6 44 ·6 | 35 ·07 |
| 21 ·64 | 19 3 14 ·2 | 35 ·93 |
| 26 ·89 | 18 59 38 ·6 | 36 ·80 |
| 32 ·00 | 18 55 57 ·8 | 37 ·65 |
| 36 ·98 | 18 52 11 ·9 | 38 ·52 |
| 41 ·83 | 18 48 20 ·8 | 39 ·35 |
| 46 ·54 | 18 44 24 ·7 | 40 ·20 |
| 51 ·11 | 18 40 23 ·5 | 41 ·03 |
| 55 ·55 | N.18 36 17 ·3 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *MONDAY* 15. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 6 51 55 ·55 | N.18 36 17 ·3 | 41 ·87 |
| 1 | 6 53 59 ·85 | 18 32 6 ·1 | 42 ·70 |
| 2 | 6 56 4 ·00 | 18 27 49 ·9 | 43 ·53 |
| 3 | 6 58 8 ·02 | 18 23 28 ·7 | 44 ·35 |
| 4 | 7 0 11 ·89 | 18 19 2 ·6 | 45 ·15 |
| 5 | 7 2 15 ·62 | 18 14 31 ·7 | 45 ·98 |
| 6 | 7 4 19 ·21 | 18 9 55 ·8 | 46 ·77 |
| 7 | 7 6 22 ·66 | 18 5 15 ·2 | 47 ·58 |
| 8 | 7 8 25 ·96 | 18 0 29 ·7 | 48 ·38 |
| 9 | 7 10 29 ·11 | 17 55 39 ·4 | 49 ·15 |
| 10 | 7 12 32 ·12 | 17 50 44 ·5 | 49 ·97 |
| 11 | 7 14 34 ·99 | 17 45 44 ·7 | 50 ·73 |
| 12 | 7 16 37 ·71 | 17 40 40 ·3 | 51 ·52 |
| 13 | 7 18 40 ·28 | 17 35 31 ·2 | 52 ·27 |
| 14 | 7 20 42 ·71 | 17 30 17 ·6 | 53 ·05 |
| 15 | 7 22 44 ·99 | 17 24 59 ·3 | 53 ·80 |
| 16 | 7 24 47 ·12 | 17 19 36 ·5 | 54 ·57 |
| 17 | 7 26 49 ·11 | 17 14 9 ·1 | 55 ·32 |
| 18 | 7 28 50 ·94 | 17 8 37 ·2 | 56 ·05 |
| 19 | 7 30 52 ·64 | 17 3 0 ·9 | 56 ·80 |
| 20 | 7 32 54 ·18 | 16 57 20 ·1 | 57 ·52 |
| 21 | 7 34 55 ·57 | 16 51 35 ·0 | 58 ·27 |
| 22 | 7 36 56 ·82 | 16 45 45 ·4 | 58 ·98 |
| 23 | 7 38 57 ·92 | N.16 39 51 ·5 | 59 ·70 |
| | *TUESDAY* 16. | | |
| 0 | 7 40 58 ·87 | N.16 33 53 ·3 | 60 ·42 |
| 1 | 7 42 59 ·68 | 16 27 50 ·8 | 61 ·12 |
| 2 | 7 45 0 ·34 | 16 21 44 ·1 | 61 ·83 |
| 3 | 7 47 0 ·85 | 16 15 33 ·1 | 62 ·52 |
| 4 | 7 49 1 ·22 | 16 9 18 ·0 | 63 ·22 |
| 5 | 7 51 1 ·44 | 16 2 58 ·7 | 63 ·88 |
| 6 | 7 53 1 ·52 | 15 56 35 ·4 | 64 ·58 |
| 7 | 7 55 1 ·45 | 15 50 7 ·9 | 65 ·25 |
| 8 | 7 57 1 ·24 | 15 43 36 ·4 | 65 ·92 |
| 9 | 7 59 0 ·89 | 15 37 0 ·9 | 66 ·60 |
| 10 | 8 1 0 ·39 | 15 30 21 ·3 | 67 ·23 |
| 11 | 8 2 59 ·75 | 15 23 37 ·9 | 67 ·90 |
| 12 | 8 4 58 ·97 | 15 16 50 ·5 | 68 ·55 |
| 13 | 8 6 58 ·05 | 15 9 59 ·2 | 69 ·18 |
| 14 | 8 8 56 ·99 | 15 3 4 ·1 | 69 ·82 |
| 15 | 8 10 55 ·79 | 14 56 5 ·2 | 70 ·45 |
| 16 | 8 12 54 ·45 | 14 49 2 ·5 | 71 ·07 |
| 17 | 8 14 52 ·97 | 14 41 56 ·1 | 71 ·70 |
| 18 | 8 16 51 ·36 | 14 34 45 ·9 | 72 ·32 |
| 19 | 8 18 49 ·62 | 14 27 32 ·0 | 72 ·92 |
| 20 | 8 20 47 ·73 | 14 20 14 ·5 | 73 ·52 |
| 21 | 8 22 45 ·72 | 14 12 53 ·4 | 74 ·12 |
| 22 | 8 24 43 ·57 | 14 5 28 ·7 | 74 ·70 |
| 23 | 8 26 41 ·30 | 13 58 0 ·5 | 75 ·30 |
| 24 | 8 28 38 ·88 | N.13 50 28 ·7 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 17. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 8 28 38 ·88 | N.13 50 28 ·7 | 75 ·87 |
| 1 | 8 30 36 ·35 | 13 42 53 ·5 | 76 ·45 |
| 2 | 8 32 33 ·69 | 13 35 14 ·8 | 77 ·03 |
| 3 | 8 34 30 ·90 | 13 27 32 ·6 | 77 ·58 |
| 4 | 8 36 27 ·99 | 13 19 47 ·1 | 78 ·13 |
| 5 | 8 38 24 ·96 | 13 11 58 ·3 | 78 ·70 |
| 6 | 8 40 21 ·81 | 13 4 6 ·1 | 79 ·23 |
| 7 | 8 42 18 ·54 | 12 56 10 ·7 | 79 ·78 |
| 8 | 8 44 15 ·14 | 12 48 12 ·0 | 80 ·32 |
| 9 | 8 46 11 ·64 | 12 40 10 ·1 | 80 ·85 |
| 10 | 8 48 8 ·01 | 12 32 5 ·0 | 81 ·38 |
| 11 | 8 50 4 ·28 | 12 23 56 ·7 | 81 ·88 |
| 12 | 8 52 0 ·43 | 12 15 45 ·4 | 82 ·40 |
| 13 | 8 53 56 ·47 | 12 7 31 ·0 | 82 ·92 |
| 14 | 8 55 52 ·41 | 11 59 13 ·5 | 83 ·42 |
| 15 | 8 57 48 ·24 | 11 50 53 ·0 | 83 ·92 |
| 16 | 8 59 43 ·96 | 11 42 29 ·5 | 84 ·42 |
| 17 | 9 1 39 ·59 | 11 34 3 ·0 | 84 ·88 |
| 18 | 9 3 35 ·11 | 11 25 33 ·7 | 85 ·38 |
| 19 | 9 5 30 ·53 | 11 17 1 ·4 | 85 ·85 |
| 20 | 9 7 25 ·86 | 11 8 26 ·3 | 86 ·32 |
| 21 | 9 9 21 ·09 | 10 59 48 ·4 | 86 ·78 |
| 22 | 9 11 16 ·23 | 10 51 7 ·7 | 87 ·25 |
| 23 | 9 13 11 ·28 | N.10 42 24 ·2 | 87 ·70 |
| | *THURSDAY* 18. | | |
| 0 | 9 15 6 ·24 | N.10 33 38 ·0 | 88 ·15 |
| 1 | 9 17 1 ·12 | 10 24 49 ·1 | 88 ·58 |
| 2 | 9 18 55 ·91 | 10 15 57 ·6 | 89 ·03 |
| 3 | 9 20 50 ·62 | 10 7 3 ·4 | 89 ·47 |
| 4 | 9 22 45 ·25 | 9 58 6 ·6 | 89 ·88 |
| 5 | 9 24 39 ·80 | 9 49 7 ·3 | 90 ·32 |
| 6 | 9 26 34 ·28 | 9 40 5 ·4 | 90 ·73 |
| 7 | 9 28 28 ·68 | 9 31 1 ·0 | 91 ·13 |
| 8 | 9 30 23 ·01 | 9 21 54 ·2 | 91 ·53 |
| 9 | 9 32 17 ·28 | 9 12 45 ·0 | 91 ·95 |
| 10 | 9 34 11 ·48 | 9 3 33 ·3 | 92 ·33 |
| 11 | 9 36 5 ·62 | 8 54 19 ·3 | 92 ·73 |
| 12 | 9 37 59 ·70 | 8 45 2 ·9 | 93 ·12 |
| 13 | 9 39 53 ·72 | 8 35 44 ·2 | 93 ·48 |
| 14 | 9 41 47 ·68 | 8 26 23 ·3 | 93 ·87 |
| 15 | 9 43 41 ·59 | 8 17 0 ·1 | 94 ·23 |
| 16 | 9 45 35 ·45 | 8 7 34 ·7 | 94 ·58 |
| 17 | 9 47 29 ·27 | 7 58 7 ·2 | 94 ·95 |
| 18 | 9 49 23 ·03 | 7 48 37 ·5 | 95 ·30 |
| 19 | 9 51 16 ·76 | 7 39 5 ·7 | 95 ·65 |
| 20 | 9 53 10 ·44 | 7 29 31 ·8 | 95 ·98 |
| 21 | 9 55 4 ·09 | 7 19 55 ·9 | 96 ·32 |
| 22 | 9 56 57 ·70 | 7 10 18 ·0 | 96 ·65 |
| 23 | 9 58 51 ·29 | 7 0 38 ·1 | 96 ·98 |
| 24 | 10 0 44 ·84 | N. 6 50 56 ·2 | |

| Hour. | Right Ascension. | Declination. |
|---|---|---|
| | *FRIDAY* 19. | |
| | h m s | ° ′ ″ |
| 0 | 10 0 44 ·84 | N.6 50 56 ·2 |
| 1 | 10 2 38 ·37 | 6 41 12 ·4 |
| 2 | 10 4 31 ·87 | 6 31 26 ·8 |
| 3 | 10 6 25 ·35 | 6 21 39 ·3 |
| 4 | 10 8 18 ·81 | 6 11 50 ·0 |
| 5 | 10 10 12 ·26 | 6 1 58 ·9 |
| 6 | 10 12 5 ·69 | 5 52 6 ·0 |
| 7 | 10 13 59 ·12 | 5 42 11 ·5 |
| 8 | 10 15 52 ·54 | 5 32 15 ·2 |
| 9 | 10 17 45 ·96 | 5 22 17 ·3 |
| 10 | 10 19 39 ·37 | 5 12 17 ·7 |
| 11 | 10 21 32 ·79 | 5 2 16 ·6 |
| 12 | 10 23 26 ·22 | 4 52 13 ·9 |
| 13 | 10 25 19 ·66 | 4 42 9 ·7 |
| 14 | 10 27 13 ·10 | 4 32 3 ·9 |
| 15 | 10 29 6 ·56 | 4 21 56 ·7 |
| 16 | 10 31 0 ·04 | 4 11 48 ·1 |
| 17 | 10 32 53 ·55 | 4 1 38 ·1 |
| 18 | 10 34 47 ·07 | 3 51 26 ·7 |
| 19 | 10 36 40 ·63 | 3 41 14 ·0 |
| 20 | 10 38 34 ·21 | 3 30 59 ·9 |
| 21 | 10 40 27 ·83 | 3 20 44 ·7 |
| 22 | 10 42 21 ·49 | 3 10 28 ·1 |
| 23 | 10 44 15 ·18 | N.3 0 10 ·4 |
| | *SATURDAY* 20. | |
| 0 | 10 46 8 ·93 | N.2 49 51 ·5 |
| 1 | 10 48 2 ·72 | 2 39 31 ·5 |
| 2 | 10 49 56 ·56 | 2 29 10 ·3 |
| 3 | 10 51 50 ·45 | 2 18 48 ·1 |
| 4 | 10 53 44 ·40 | 2 8 24 ·9 |
| 5 | 10 55 38 ·41 | 1 58 0 ·7 |
| 6 | 10 57 32 ·48 | 1 47 35 ·5 |
| 7 | 10 59 26 ·62 | 1 37 9 ·4 |
| 8 | 11 1 20 ·83 | 1 26 42 ·4 |
| 9 | 11 3 15 ·11 | 1 16 14 ·6 |
| 10 | 11 5 9 ·47 | 1 5 45 ·9 |
| 11 | 11 7 3 ·91 | 0 55 16 ·5 |
| 12 | 11 8 58 ·44 | 0 44 46 ·3 |
| 13 | 11 10 53 ·05 | 0 34 15 ·4 |
| 14 | 11 12 47 ·76 | 0 23 43 ·9 |
| 15 | 11 14 42 ·56 | 0 13 11 ·7 |
| 16 | 11 16 37 ·45 | N. 0 2 39 ·0 |
| 17 | 11 18 32 ·45 | S. 0 7 54 ·4 |
| 18 | 11 20 27 ·55 | 0 18 28 ·2 |
| 19 | 11 22 22 ·76 | 0 29 2 ·6 |
| 20 | 11 24 18 ·09 | 0 39 37 ·4 |
| 21 | 11 26 13 ·52 | 0 50 12 ·7 |
| 22 | 11 28 9 ·08 | 1 0 48 ·3 |
| 23 | 11 30 4 ·76 | 1 11 24 ·3 |
| 24 | 11 32 0 ·56 | S. 1 22 0 ·5 |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for 10m. | Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|---|---|---|
| *SUNDAY* 21. | | | | *TUESDAY* 23. | | |
| h m s | ° ′ ″ | ″ | | h m s | ° ′ ″ | ″ |
| 32 0·56 | S. 1 22 0·5 | 106·10 | 0 | 13 8 18·55 | S. 9 43 3·2 | 99·43 |
| 33 56·50 | 1 32 37·1 | 106·12 | 1 | 13 10 24·96 | 9 52 59·8 | 99·08 |
| 35 52·57 | 1 43 13·8 | 106·17 | 2 | 13 12 31·67 | 10 2 54·3 | 98·72 |
| 37 48·77 | 1 53 50·8 | 106·20 | 3 | 13 14 38·69 | 10 12 46·6 | 98·35 |
| 39 45·12 | 2 4 28·0 | 106·20 | 4 | 13 16 46·02 | 10 22 36·7 | 97·97 |
| 41 41·61 | 2 15 5·2 | 106·22 | 5 | 13 18 53·66 | 10 32 24·5 | 97·57 |
| 43 38·25 | 2 25 42·5 | 106·23 | 6 | 13 21 1·62 | 10 42 9·9 | 97·17 |
| 45 35·04 | 2 36 19·9 | 106·22 | 7 | 13 23 9·89 | 10 51 52·9 | 96·75 |
| 47 31·98 | 2 46 57·2 | 106·22 | 8 | 13 25 18·49 | 11 1 33·4 | 96·32 |
| 49 29·09 | 2 57 34·5 | 106·18 | 9 | 13 27 27·41 | 11 11 11·3 | 95·88 |
| 51 26·35 | 3 8 11·6 | 106·18 | 10 | 13 29 36·66 | 11 20 46·6 | 95·43 |
| 53 23·78 | 3 18 48·7 | 106·15 | 11 | 13 31 46·24 | 11 30 19·2 | 94·98 |
| 55 21·38 | 3 29 25·6 | 106·10 | 12 | 13 33 56·16 | 11 39 49·1 | 94·50 |
| 57 19·16 | 3 40 2·2 | 106·07 | 13 | 13 36 6·41 | 11 49 16·1 | 94·03 |
| 59 17·11 | 3 50 38·6 | 106·02 | 14 | 13 38 16·99 | 11 58 40·3 | 93·53 |
| 1 15·24 | 4 1 14·7 | 105·95 | 15 | 13 40 27·92 | 12 8 1·5 | 93·03 |
| 3 13·55 | 4 11 50·4 | 105·88 | 16 | 13 42 39·20 | 12 17 19·7 | 92·50 |
| 5 12·05 | 4 22 25·7 | 105·82 | 17 | 13 44 50·81 | 12 26 34·7 | 91·98 |
| 7 10·75 | 4 33 0·6 | 105·73 | 18 | 13 47 2·78 | 12 35 46·6 | 91·45 |
| 9 9·64 | 4 43 35·0 | 105·65 | 19 | 13 49 15·10 | 12 44 55·3 | 90·88 |
| 11 8·72 | 4 54 8·9 | 105·55 | 20 | 13 51 27·77 | 12 54 0·6 | 90·33 |
| 13 8·02 | 5 4 42·2 | 105·45 | 21 | 13 53 40·80 | 13 3 2·6 | 89·75 |
| 15 7·51 | 5 15 14·9 | 105·33 | 22 | 13 55 54·18 | 13 12 1·1 | 89·15 |
| 17 7·22 | S. 5 25 46·9 | 105·22 | 23 | 13 58 7·93 | S. 13 20 56·0 | 88·57 |
| *MONDAY* 22. | | | | *WEDNESDAY* 24. | | |
| 19 7·14 | S. 5 36 18·2 | 105·10 | 0 | 14 0 22·03 | S. 13 29 47·4 | 87·95 |
| 21 7·27 | 5 46 48·8 | 104·95 | 1 | 14 2 36·50 | 13 38 35·1 | 87·32 |
| 23 7·63 | 5 57 18·5 | 104·82 | 2 | 14 4 51·33 | 13 47 19·0 | 86·70 |
| 25 8·21 | 6 7 47·4 | 104·65 | 3 | 14 7 6·53 | 13 55 59·2 | 86·03 |
| 27 9·02 | 6 18 15·3 | 104·52 | 4 | 14 9 22·11 | 14 4 35·4 | 85·37 |
| 29 10·06 | 6 28 42·4 | 104·33 | 5 | 14 11 38·05 | 14 13 7·6 | 84·70 |
| 31 11·33 | 6 39 8·4 | 104·15 | 6 | 14 13 54·36 | 14 21 35·8 | 84·02 |
| 33 12·85 | 6 49 33·3 | 103·97 | 7 | 14 16 11·05 | 14 29 59·9 | 83·32 |
| 35 14·61 | 6 59 57·1 | 103·78 | 8 | 14 18 28·11 | 14 38 19·8 | 82·60 |
| 37 16·61 | 7 10 19·8 | 103·57 | 9 | 14 20 45·55 | 14 46 35·4 | 81·88 |
| 39 18·86 | 7 20 41·2 | 103·37 | 10 | 14 23 3·36 | 14 54 46·7 | 81·13 |
| 41 21·36 | 7 31 1·4 | 103·15 | 11 | 14 25 21·55 | 15 2 53·5 | 80·38 |
| 43 24·13 | 7 41 20·3 | 102·92 | 12 | 14 27 40·12 | 15 10 55·8 | 79·63 |
| 45 27·15 | 7 51 37·8 | 102·67 | 13 | 14 29 59·07 | 15 18 53·6 | 78·85 |
| 47 30·44 | 8 1 53·8 | 102·42 | 14 | 14 32 18·40 | 15 26 46·7 | 78·07 |
| 49 33·99 | 8 12 8·3 | 102·17 | 15 | 14 34 38·12 | 15 34 35·1 | 77·25 |
| 51 37·81 | 8 22 21·3 | 101·90 | 16 | 14 36 58·22 | 15 42 18·6 | 76·43 |
| 53 41·91 | 8 32 32·7 | 101·63 | 17 | 14 39 18·69 | 15 49 57·2 | 75·60 |
| 55 46·29 | 8 42 42·5 | 101·35 | 18 | 14 41 39·56 | 15 57 30·8 | 74·77 |
| 57 50·94 | 8 52 50·6 | 101·03 | 19 | 14 44 0·80 | 16 4 59·4 | 73·90 |
| 59 55·88 | 9 2 56·8 | 100·75 | 20 | 14 46 22·43 | 16 12 22·8 | 73·02 |
| 2 1·11 | 9 13 1·3 | 100·43 | 21 | 14 48 44·44 | 16 19 40·9 | 72·15 |
| 4 6·63 | 9 23 3·9 | 100·10 | 22 | 14 51 6·83 | 16 26 53·8 | 71·25 |
| 6 12·44 | 9 33 4·5 | 99·78 | 23 | 14 53 29·60 | 16 34 1·3 | 70·33 |
| 8 18·55 | S. 9 43 3·2 | | 24 | 14 55 52·75 | S. 16 41 3·3 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *THURSDAY* 25. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 14 55 52 ·75 | S. 16 41 3 ·3 | 69 ·42 |
| 1 | 14 58 16 ·29 | 16 47 59 ·8 | 68 ·48 |
| 2 | 15 0 40 ·21 | 16 54 50 ·7 | 67 ·53 |
| 3 | 15 3 4 ·51 | 17 1 35 ·9 | 66 ·57 |
| 4 | 15 5 29 ·18 | 17 8 15 ·3 | 65 ·58 |
| 5 | 15 7 54 ·24 | 17 14 48 ·8 | 64 ·60 |
| 6 | 15 10 19 ·67 | 17 21 16 ·4 | 63 ·58 |
| 7 | 15 12 45 ·48 | 17 27 37 ·9 | 62 ·58 |
| 8 | 15 15 11 ·66 | 17 33 53 ·4 | 61 ·53 |
| 9 | 15 17 38 ·21 | 17 40 2 ·6 | 60 ·50 |
| 10 | 15 20 5 ·13 | 17 46 5 ·6 | 59 ·45 |
| 11 | 15 22 32 ·42 | 17 52 2 ·3 | 58 ·37 |
| 12 | 15 25 0 ·07 | 17 57 52 ·5 | 57 ·28 |
| 13 | 15 27 28 ·09 | 18 3 36 ·2 | 56 ·20 |
| 14 | 15 29 56 ·48 | 18 9 13 ·4 | 55 ·08 |
| 15 | 15 32 25 ·22 | 18 14 43 ·9 | 53 ·95 |
| 16 | 15 34 54 ·33 | 18 20 7 ·6 | 52 ·82 |
| 17 | 15 37 23 ·78 | 18 25 24 ·5 | 51 ·68 |
| 18 | 15 39 53 ·59 | 18 30 34 ·6 | 50 ·52 |
| 19 | 15 42 23 ·74 | 18 35 37 ·7 | 49 ·33 |
| 20 | 15 44 54 ·24 | 18 40 33 ·7 | 48 ·15 |
| 21 | 15 47 25 ·08 | 18 45 22 ·6 | 46 ·97 |
| 22 | 15 49 56 ·26 | 18 50 4 ·4 | 45 ·75 |
| 23 | 15 52 27 ·77 | S. 18 54 38 ·9 | 44 ·53 |
| | *FRIDAY* 26. | | |
| 0 | 15 54 59 ·60 | S. 18 59 6 ·1 | 43 ·30 |
| 1 | 15 57 31 ·77 | 19 3 25 ·9 | 42 ·05 |
| 2 | 16 0 4 ·26 | 19 7 38 ·2 | 40 ·80 |
| 3 | 16 2 37 ·07 | 19 11 43 ·0 | 39 ·52 |
| 4 | 16 5 10 ·19 | 19 15 40 ·1 | 38 ·25 |
| 5 | 16 7 43 ·63 | 19 19 29 ·6 | 36 ·97 |
| 6 | 16 10 17 ·36 | 19 23 11 ·4 | 35 ·65 |
| 7 | 16 12 51 ·40 | 19 26 45 ·3 | 34 ·35 |
| 8 | 16 15 25 ·73 | 19 30 11 ·4 | 33 ·02 |
| 9 | 16 18 0 ·34 | 19 33 29 ·5 | 31 ·70 |
| 10 | 16 20 35 ·25 | 19 36 39 ·7 | 30 ·35 |
| 11 | 16 23 10 ·43 | 19 39 41 ·8 | 29 ·00 |
| 12 | 16 25 45 ·88 | 19 42 35 ·8 | 27 ·63 |
| 13 | 16 28 21 ·60 | 19 45 21 ·6 | 26 ·27 |
| 14 | 16 30 57 ·59 | 19 47 59 ·2 | 24 ·88 |
| 15 | 16 33 33 ·83 | 19 50 28 ·5 | 23 ·48 |
| 16 | 16 36 10 ·32 | 19 52 49 ·4 | 22 ·10 |
| 17 | 16 38 47 ·05 | 19 55 2 ·0 | 20 ·68 |
| 18 | 16 41 24 ·01 | 19 57 6 ·1 | 19 ·27 |
| 19 | 16 44 1 ·21 | 19 59 1 ·7 | 17 ·85 |
| 20 | 16 46 38 ·63 | 20 0 48 ·8 | 16 ·43 |
| 21 | 16 49 16 ·27 | 20 2 27 ·4 | 14 ·98 |
| 22 | 16 51 54 ·12 | 20 3 57 ·3 | 13 ·53 |
| 23 | 16 54 32 ·17 | 20 5 18 ·5 | 12 ·10 |
| 24 | 16 57 10 ·41 | S. 20 6 31 ·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for $10^m$. |
|---|---|---|---|
| | *SATURDAY* 27. | | |
| | h m s | ° ′ ″ | |
| 0 | 16 57 10 ·41 | S. 20 6 31 ·1 | |
| 1 | 16 59 48 ·85 | 20 7 34 ·9 | |
| 2 | 17 2 27 ·47 | 20 8 29 ·9 | |
| 3 | 17 5 6 ·26 | 20 9 16 ·1 | |
| 4 | 17 7 45 ·22 | 20 9 53 ·5 | |
| 5 | 17 10 24 ·35 | 20 10 22 ·0 | |
| 6 | 17 13 3 ·62 | 20 10 41 ·6 | |
| 7 | 17 15 43 ·04 | 20 10 52 ·2 | |
| 8 | 17 18 22 ·59 | 20 10 53 ·9 | |
| 9 | 17 21 2 ·28 | 20 10 46 ·6 | |
| 10 | 17 23 42 ·08 | 20 10 30 ·3 | |
| 11 | 17 26 22 ·00 | 20 10 5 ·0 | |
| 12 | 17 29 2 ·03 | 20 9 30 ·7 | |
| 13 | 17 31 42 ·16 | 20 8 47 ·3 | |
| 14 | 17 34 22 ·37 | 20 7 54 ·8 | |
| 15 | 17 37 2 ·67 | 20 6 53 ·3 | |
| 16 | 17 39 43 ·04 | 20 5 42 ·7 | |
| 17 | 17 42 23 ·47 | 20 4 23 ·0 | |
| 18 | 17 45 3 ·97 | 20 2 54 ·2 | |
| 19 | 17 47 44 ·51 | 20 1 16 ·3 | |
| 20 | 17 50 25 ·09 | 19 59 29 ·4 | |
| 21 | 17 53 5 ·71 | 19 57 33 ·3 | |
| 22 | 17 55 46 ·36 | 19 55 28 ·2 | |
| 23 | 17 58 27 ·02 | S. 19 53 14 ·0 | |
| | *SUNDAY* 28. | | |
| 0 | 18 1 7 ·69 | S. 19 50 50 ·8 | |
| 1 | 18 3 48 ·36 | 19 48 18 ·5 | |
| 2 | 18 6 29 ·03 | 19 45 37 ·2 | |
| 3 | 18 9 9 ·68 | 19 42 46 ·8 | |
| 4 | 18 11 50 ·31 | 19 39 47 ·5 | |
| 5 | 18 14 30 ·90 | 19 36 39 ·2 | |
| 6 | 18 17 11 ·46 | 19 33 21 ·9 | |
| 7 | 18 19 51 ·97 | 19 29 55 ·7 | |
| 8 | 18 22 32 ·43 | 19 26 20 ·6 | |
| 9 | 18 25 12 ·82 | 19 22 36 ·6 | |
| 10 | 18 27 53 ·15 | 19 18 43 ·9 | |
| 11 | 18 30 33 ·39 | 19 14 42 ·3 | |
| 12 | 18 33 13 ·55 | 19 10 31 ·9 | |
| 13 | 18 35 53 ·62 | 19 6 12 ·8 | |
| 14 | 18 38 33 ·59 | 19 1 45 ·0 | |
| 15 | 18 41 13 ·45 | 18 57 8 ·6 | |
| 16 | 18 43 53 ·19 | 18 52 23 ·6 | |
| 17 | 18 46 32 ·82 | 18 47 30 ·0 | |
| 18 | 18 49 12 ·31 | 18 42 27 ·9 | |
| 19 | 18 51 51 ·68 | 18 37 17 ·4 | |
| 20 | 18 54 30 ·90 | 18 31 58 ·5 | |
| 21 | 18 57 9 ·97 | 18 26 31 ·3 | |
| 22 | 18 59 48 ·89 | 18 20 55 ·8 | |
| 23 | 19 2 27 ·65 | 18 15 12 ·0 | |
| 24 | 19 5 6 ·25 | S. 18 9 20 ·1 | |

## MEAN TIME.

### THE MOON'S RIGHT ASCENSION AND DECLINATION.

| ht Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|
| *MONDAY* 29. | | |
| m s | ° ′ ″ | ″ |
| 5 6·25 | S. 18 9 20·1 | 60·00 |
| 7 44·67 | 18 3 20·1 | 61·35 |
| 10 22·91 | 17 57 12·0 | 62·67 |
| 13 0·96 | 17 50 56·0 | 63·98 |
| 15 38·82 | 17 44 32·1 | 65·30 |
| 18 16·49 | 17 38 0·3 | 66·58 |
| 20 53·95 | 17 31 20·8 | 67·87 |
| 23 31·21 | 17 24 33·6 | 69·15 |
| 26 8·25 | 17 17 38·7 | 70·40 |
| 28 45·08 | 17 10 36·3 | 71·63 |
| 31 21·68 | 17 3 26·5 | 72·88 |
| 33 58·05 | 16 56 9·2 | 74·10 |
| 36 34·18 | 16 48 44·6 | 75·30 |
| 39 10·08 | 16 41 12·8 | 76·50 |
| 41 45·74 | 16 33 33·8 | 77·67 |
| 44 21·15 | 16 25 47·8 | 78·85 |
| 46 56·31 | 16 17 54·7 | 79·98 |
| 49 31·22 | 16 9 54·8 | 81·13 |
| 52 5·87 | 16 1 48·0 | 82·25 |
| 54 40·26 | 15 53 34·5 | 83·35 |
| 57 14·38 | 15 45 14·4 | 84·45 |
| 59 48·24 | 15 36 47·7 | 85·52 |
| 2 21·82 | 15 28 14·6 | 86·60 |
| 4 55·13 | S. 15 19 35·0 | 87·63 |
| *TUESDAY* 30. | | |
| 7 28·16 | S. 15 10 49·2 | 88·67 |
| 10 0·91 | 15 1 57·2 | 89·68 |
| 12 33·38 | 14 52 59·1 | 90·68 |
| 15 5·56 | 14 43 55·0 | 91·67 |
| 17 37·46 | 14 34 45·0 | 92·65 |
| 20 9·07 | 14 25 29·1 | 93·58 |
| 22 40·38 | 14 16 7·6 | 94·33 |
| 25 11·41 | 14 6 40·4 | 95·45 |
| 27 42·13 | 13 57 7·7 | 96·35 |
| 30 12·56 | 13 47 29·6 | 97·25 |
| 32 42·69 | 13 37 46·1 | 98·12 |
| 35 12·52 | 13 27 57·4 | 98·97 |
| 37 42·06 | 13 18 3·6 | 99·82 |
| 40 11·29 | 13 8 4·7 | 100·63 |
| 42 40·22 | 12 58 0·9 | 101·43 |
| 45 8·84 | 12 47 52·3 | 102·23 |
| 47 37·16 | 12 37 38·9 | 103·00 |
| 50 5·17 | 12 27 20·9 | 103·75 |
| 52 32·88 | 12 16 58·4 | 104·50 |
| 55 0·28 | 12 6 31·4 | 105·23 |
| 57 27·38 | 11 56 0·0 | 105·93 |
| 59 54·17 | 11 45 24·4 | 106·62 |
| 2 20·66 | 11 34 44·7 | 107·30 |
| 4 46·83 | 11 24 0·9 | 107·97 |
| 7 12·71 | S. 11 13 13·1 | |

| Hour. | Right Ascension. | Declination. | Diff. Dec. for 10m. |
|---|---|---|---|
| | *WEDNESDAY* 31. | | |
| | h m s | ° ′ ″ | ″ |
| 0 | 21 7 12·71 | S. 11 13 13·1 | 108·60 |
| 1 | 21 9 38·28 | 11 2 21·5 | 109·23 |
| 2 | 21 12 3·55 | 10 51 26·1 | 109·83 |
| 3 | 21 14 28·51 | 10 40 27·1 | 110·42 |
| 4 | 21 16 53·17 | 10 29 24·6 | 111·02 |
| 5 | 21 19 17·53 | 10 18 18·5 | 111·57 |
| 6 | 21 21 41·58 | 10 7 9·1 | 112·10 |
| 7 | 21 24 5·34 | 9 55 56·5 | 112·63 |
| 8 | 21 26 28·80 | 9 44 40·7 | 113·17 |
| 9 | 21 28 51·96 | 9 33 21·7 | 113·63 |
| 10 | 21 31 14·82 | 9 21 59·9 | 114·13 |
| 11 | 21 33 37·39 | 9 10 35·1 | 114·60 |
| 12 | 21 35 59·66 | 8 59 7·5 | 115·05 |
| 13 | 21 38 21·64 | 8 47 37·2 | 115·47 |
| 14 | 21 40 43·33 | 8 36 4·4 | 115·90 |
| 15 | 21 43 4·73 | 8 24 29·0 | 116·28 |
| 16 | 21 45 25·85 | 8 12 51·3 | 116·68 |
| 17 | 21 47 46·68 | 8 1 11·2 | 117·07 |
| 18 | 21 50 7·22 | 7 49 28·8 | 117·40 |
| 19 | 21 52 27·49 | 7 37 44·4 | 117·75 |
| 20 | 21 54 47·48 | 7 25 57·9 | 118·07 |
| 21 | 21 57 7·19 | 7 14 9·5 | 118·40 |
| 22 | 21 59 26·62 | 7 2 19·1 | 118·67 |
| 23 | 22 1 45·78 | S. 6 50 27·1 | 118·97 |
| | *THURSDAY, JAN.* 1, 1846. | | |
| 0 | 22 4 4·67 | S. 6 38 33·3 | |

### PHASES OF THE MOON.

| | | d h m |
|---|---|---|
| ☽ | *First Quarter* - - | 5 14 52·3 |
| ○ | Full Moon - - - | 13 6 42·9 |
| ☾ | *Last Quarter* - - | 21 11 27·3 |
| ● | New Moon - - - | 28 10 53·1 |

| | | d h |
|---|---|---|
| ☾ | Apogee - - - - - - - - | 16 11 |
| ☾ | Perigee - - - - - - - - | 29 3 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | Noon. | P.L. of diff. | III$^h$. | P.L. of diff. | VI$^h$. | P.L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ |
| 1 | Sun W. | 28 6 48 | 2387 | 29 50 42 | 2387 | 31 34 35 | 2390 | 33 18 2 |
| | Fomalhaut E. | 59 7 33 | 2750 | 57 31 59 | 2780 | 55 57 5 | 2816 | 54 22 5 |
| | Mars E. | 70 47 14 | 2262 | 69 0 18 | 2265 | 67 13 27 | 2269 | 65 26 4 |
| | α Pegasi E. | 73 50 16 | 2237 | 72 2 44 | 2244 | 70 15 22 | 2252 | 68 28 1 |
| | Jupiter E. | 114 50 58 | 2052 | 112 58 45 | 2055 | 111 6 36 | 2058 | 109 14 3 |
| 2 | Sun W. | 41 55 51 | 2422 | 43 38 55 | 2429 | 45 21 49 | 2437 | 47 4 3 |
| | Fomalhaut E. | 46 46 54 | 3129 | 45 19 19 | 3204 | 43 53 14 | 3288 | 42 28 4 |
| | Mars E. | 56 35 0 | 2307 | 54 49 10 | 2315 | 53 3 33 | 2324 | 51 18 |
| | α Pegasi E. | 59 35 55 | 2319 | 57 50 24 | 2335 | 56 5 16 | 2353 | 54 20 3 |
| | Jupiter E. | 99 55 59 | 2089 | 98 4 43 | 2097 | 96 13 39 | 2104 | 94 22 4 |
| 3 | Sun W. | 55 34 53 | 2494 | 57 16 15 | 2505 | 58 57 22 | 2516 | 60 38 1 |
| | Mars E. | 42 34 57 | 2392 | 40 51 11 | 2405 | 39 7 43 | 2419 | 37 24 3 |
| | α Pegasi E. | 45 44 34 | 2494 | 44 3 13 | 2526 | 42 22 36 | 2561 | 40 42 4 |
| | Jupiter E. | 85 11 38 | 2158 | 83 22 7 | 2169 | 81 32 53 | 2179 | 79 43 5 |
| | α Arietis E. | 87 58 33 | 2229 | 86 10 49 | 2240 | 84 23 21 | 2251 | 82 36 |
| 4 | Sun W. | 68 58 21 | 2589 | 70 37 31 | 2602 | 72 16 24 | 2615 | 73 54 5 |
| | Venus W. | 23 41 51 | 2847 | 25 15 18 | 2834 | 26 49 2 | 2826 | 28 22 5 |
| | Mars E. | 28 54 43 | 2523 | 27 14 2 | 2546 | 25 33 53 | 2569 | 23 54 1 |
| | Jupiter E. | 70 43 12 | 2248 | 68 55 56 | 2260 | 67 8 58 | 2273 | 65 22 1 |
| | α Arietis E. | 73 44 27 | 2323 | 71 59 1 | 2337 | 70 13 55 | 2350 | 68 29 |
| | Aldebaran E. | 106 52 14 | 2275 | 105 5 37 | 2285 | 103 19 16 | 2298 | 101 33 1 |
| 5 | Sun W. | 82 3 20 | 2696 | 83 40 5 | 2709 | 85 16 33 | 2723 | 86 52 4 |
| | Venus W. | 36 13 1 | 2830 | 37 46 50 | 2836 | 39 20 31 | 2843 | 40 54 |
| | Saturn W. | 21 49 27 | 2573 | 23 28 59 | 2562 | 25 8 46 | 2556 | 26 48 4 |
| | Jupiter E. | 56 33 39 | 2349 | 54 48 51 | 2362 | 53 4 22 | 2375 | 51 20 1 |
| | α Arietis E. | 59 50 20 | 2437 | 58 7 38 | 2452 | 56 25 17 | 2468 | 54 43 1 |
| | Aldebaran E. | 92 47 31 | 2372 | 91 3 16 | 2385 | 89 19 20 | 2398 | 87 35 4 |
| 6 | Sun W. | 94 48 56 | 2805 | 96 23 18 | 2818 | 97 57 22 | 2832 | 99 31 |
| | α Aquilæ W. | 52 59 38 | 3119 | 54 27 24 | 3104 | 55 55 29 | 3092 | 57 23 4 |
| | Venus W. | 48 38 55 | 2898 | 50 11 16 | 2909 | 51 43 24 | 2919 | 53 15 1 |
| | Saturn W. | 35 8 24 | 2567 | 36 48 4 | 2574 | 38 27 35 | 2581 | 40 6 5 |
| | Jupiter E. | 42 44 1 | 2454 | 41 1 43 | 2467 | 39 19 43 | 2480 | 37 38 |
| | α Arietis E. | 46 19 15 | 2570 | 44 39 39 | 2589 | 43 0 29 | 2609 | 41 21 4 |
| | Aldebaran E. | 79 2 1 | 2473 | 77 20 11 | 2485 | 75 38 37 | 2498 | 73 57 2 |
| 7 | Sun W. | 107 15 49 | 2909 | 108 47 56 | 2923 | 110 19 46 | 2935 | 111 51 2 |
| | α Aquilæ W. | 64 47 50 | 3056 | 66 16 53 | 3056 | 67 45 57 | 3055 | 69 15 |
| | Venus W. | 60 51 29 | 2984 | 62 22 2 | 2995 | 63 52 21 | 3006 | 65 22 20 |
| | Saturn W. | 48 20 50 | 2633 | 49 59 0 | 2643 | 51 36 57 | 2652 | 53 14 4 |
| | Aldebaran E. | 65 35 15 | 2571 | 63 55 40 | 2583 | 62 16 21 | 2594 | 60 37 18 |
| | Pollux E. | 107 52 35 | 2655 | 106 14 55 | 2666 | 104 37 29 | 2675 | 103 0 16 |
| 8 | Sun W. | 119 25 26 | 3006 | 120 55 31 | 3018 | 122 25 21 | 3029 | 123 54 58 |
| | Venus W. | 72 49 33 | 3070 | 74 18 19 | 3081 | 75 46 52 | 3091 | 77 15 13 |
| | Saturn W. | 61 20 12 | 2709 | 62 56 40 | 2719 | 64 32 55 | 2729 | 66 8 57 |
| | Fomalhaut W. | 49 16 11 | 3524 | 50 36 9 | 3494 | 51 56 40 | 3467 | 53 17 41 |
| | Mars W. | 24 12 19 | 2945 | 25 43 41 | 2945 | 27 15 3 | 2947 | 28 46 2 |
| | Aldebaran E. | 52 25 54 | 2662 | 50 48 23 | 2673 | 49 11 7 | 2684 | 47 34 |

## MEAN TIME.

### LUNAR DISTANCES.

| | Star's Name and Position. | | Midnight. | P. L. of diff. | XV h. | P. L. of diff. | XVIII h. | P. L. of diff. | XXI h. | P. L. of diff. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| 1 | Sun | W. | 35 2 7 | 2398 | 36 45 45 | 2403 | 38 29 15 | 2409 | 40 12 37 | 2415 |
| | Fomalhaut | E. | 52 49 41 | 2899 | 51 17 21 | 2947 | 49 46 2 | 3001 | 48 15 50 | 3062 |
| | Mars | E. | 63 40 4 | 2279 | 61 53 34 | 2285 | 60 7 13 | 2292 | 58 21 1 | 2299 |
| | α Pegasi | E. | 66 41 12 | 2269 | 64 54 27 | 2280 | 63 7 59 | 2292 | 61 21 47 | 2305 |
| | Jupiter | E. | 107 22 34 | 2066 | 105 30 43 | 2071 | 103 38 59 | 2077 | 101 47 25 | 2083 |
| 2 | Sun | W. | 48 47 2 | 2454 | 50 29 20 | 2463 | 52 11 25 | 2473 | 53 53 16 | 2483 |
| | Fomalhaut | E. | 41 6 10 | 3486 | 39 45 30 | 3604 | 38 27 0 | 3738 | 37 10 53 | 3890 |
| | Mars | E. | 49 32 59 | 2344 | 47 48 4 | 2355 | 46 3 25 | 2366 | 44 19 2 | 2379 |
| | α Pegasi | E. | 52 36 17 | 2392 | 50 52 31 | 2414 | 49 9 16 | 2439 | 47 26 37 | 2465 |
| | Jupiter | E. | 92 32 5 | 2121 | 90 41 38 | 2130 | 88 51 24 | 2138 | 87 1 23 | 2149 |
| 3 | Sun | W. | 62 18 48 | 2539 | 63 59 7 | 2552 | 65 39 8 | 2564 | 67 18 53 | 2576 |
| | Mars | E. | 35 41 50 | 2450 | 33 59 27 | 2467 | 32 17 27 | 2485 | 30 35 52 | 2503 |
| | α Pegasi | E. | 39 3 52 | 2642 | 37 25 54 | 2690 | 35 49 0 | 2743 | 34 13 17 | 2804 |
| | Jupiter | E. | 77 55 11 | 2201 | 76 6 45 | 2213 | 74 18 37 | 2225 | 72 30 46 | 2236 |
| | α Arietis | E. | 80 49 13 | 2274 | 79 2 35 | 2285 | 77 16 14 | 2298 | 75 30 11 | 2311 |
| 4 | Sun | W. | 75 33 15 | 2641 | 77 11 14 | 2655 | 78 48 54 | 2669 | 80 26 16 | 2682 |
| | Venus | W. | 29 56 58 | 2818 | 31 31 2 | 2819 | 33 5 5 | 2821 | 34 39 6 | 2825 |
| | Mars | E. | 22 15 16 | 2627 | 20 36 58 | 2662 | 18 59 27 | 2703 | 17 22 51 | 2753 |
| | Jupiter | E. | 63 35 58 | 2298 | 61 49 55 | 2311 | 60 4 11 | 2324 | 58 18 46 | 2336 |
| | α Arietis | E. | 66 44 42 | 2378 | 65 0 35 | 2392 | 63 16 49 | 2407 | 61 33 24 | 2422 |
| | Aldebaran | E. | 99 47 29 | 2323 | 98 2 3 | 2335 | 96 16 54 | 2347 | 94 32 3 | 2360 |
| 5 | Sun | W. | 88 28 33 | 2751 | 90 4 5 | 2764 | 91 39 20 | 2778 | 93 14 17 | 2792 |
| | Venus | W. | 42 27 24 | 2859 | 44 0 35 | 2869 | 45 33 34 | 2878 | 47 6 20 | 2887 |
| | Saturn | W. | 28 28 43 | 2552 | 30 8 44 | 2553 | 31 48 43 | 2557 | 33 28 37 | 2562 |
| | Jupiter | E. | 49 36 20 | 2401 | 47 52 47 | 2414 | 46 9 33 | 2428 | 44 26 38 | 2441 |
| | α Arietis | E. | 53 1 43 | 2500 | 51 20 30 | 2517 | 49 39 41 | 2534 | 47 59 15 | 2553 |
| | Aldebaran | E. | 85 52 22 | 2423 | 84 9 20 | 2436 | 82 26 36 | 2448 | 80 44 10 | 2460 |
| 6 | Sun | W. | 101 4 38 | 2858 | 102 37 51 | 2872 | 104 10 46 | 2884 | 105 43 26 | 2897 |
| | α Aquilæ | W. | 58 52 21 | 3074 | 60 21 3 | 3067 | 61 49 53 | 3062 | 63 18 49 | 3058 |
| | Venus | W. | 54 47 0 | 2940 | 56 18 28 | 2951 | 57 49 42 | 2962 | 59 20 42 | 2973 |
| | Saturn | W. | 41 46 6 | 2597 | 43 25 5 | 2606 | 45 3 52 | 2615 | 46 42 27 | 2624 |
| | Jupiter | E. | 35 56 40 | 2506 | 34 15 35 | 2520 | 32 34 50 | 2533 | 30 54 23 | 2547 |
| | α Arietis | E. | 39 43 31 | 2651 | 38 5 45 | 2673 | 36 28 29 | 2697 | 34 51 45 | 2723 |
| | Aldebaran | E. | 72 16 22 | 2522 | 70 35 40 | 2535 | 68 55 15 | 2547 | 67 15 7 | 2559 |
| 7 | Sun | W. | 113 22 40 | 2959 | 114 53 44 | 2971 | 116 24 33 | 2983 | 117 55 7 | 2995 |
| | α Aquilæ | W. | 70 44 5 | 3058 | 72 13 6 | 3061 | 73 42 3 | 3064 | 75 10 57 | 3069 |
| | Venus | W. | 66 52 18 | 3027 | 68 21 57 | 3038 | 69 51 22 | 3049 | 71 20 34 | 3060 |
| | Saturn | W. | 54 52 13 | 2671 | 56 29 32 | 2681 | 58 6 38 | 2690 | 59 43 31 | 2699 |
| | Aldebaran | E. | 58 58 30 | 2617 | 57 19 58 | 2629 | 55 41 42 | 2640 | 54 3 41 | 2650 |
| | Pollux | E. | 101 23 16 | 2695 | 99 46 29 | 2705 | 98 9 56 | 2715 | 96 33 36 | 2725 |
| 8 | Sun | W. | 125 24 20 | 3052 | 126 53 29 | 3063 | 128 22 24 | 3074 | 129 51 6 | 3085 |
| | Venus | W. | 78 43 21 | 3112 | 80 11 16 | 3121 | 81 39 0 | 3132 | 83 6 31 | 3141 |
| | Saturn | W. | 67 44 47 | 2747 | 69 20 25 | 2756 | 70 55 51 | 2765 | 72 31 5 | 2774 |
| | Fomalhaut | W. | 54 39 8 | 3423 | 56 0 58 | 3406 | 57 23 8 | 3391 | 58 45 35 | 3377 |
| | Mars | W. | 30 17 36 | 2955 | 31 48 45 | 2960 | 33 19 48 | 2966 | 34 50 44 | 2971 |
| | Aldebaran | E. | 45 57 17 | 2706 | 44 20 45 | 2716 | 42 44 26 | 2727 | 41 8 22 | 2737 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P. L. of diff. | III$^h$. | P. L. of diff. | VI$^h$. | P. L. of diff. | IX$^h$. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 8 | Pollux | E. | 94 57 29 | 2735 | 93 21 36 | 2745 | 91 45 56 | 2756 | 90 10 3 |
| 9 | Venus | W. | 84 33 51 | 3151 | 86 0 59 | 3161 | 87 27 55 | 3171 | 88 54 3 |
| | Saturn | W. | 74 6 7 | 2783 | 75 40 57 | 2792 | 77 15 35 | 2801 | 78 50 |
| | Fomalhaut | W. | 60 8 18 | 3365 | 61 31 15 | 3355 | 62 54 23 | 3347 | 64 17 4 |
| | Mars | W. | 36 21 33 | 2978 | 37 52 14 | 2985 | 39 22 46 | 2991 | 40 53 1 |
| | Aldebaran | E. | 39 32 31 | 2748 | 37 56 55 | 2760 | 36 21 34 | 2770 | 34 46 2 |
| | Pollux | E. | 82 16 33 | 2815 | 80 42 24 | 2825 | 79 8 29 | 2835 | 77 34 4 |
| 10 | Venus | W. | 96 5 36 | 3226 | 97 31 15 | 3235 | 98 56 43 | 3243 | 100 22 |
| | Saturn | W. | 86 39 29 | 2852 | 88 12 50 | 2860 | 89 46 0 | 2869 | 91 18 5 |
| | α Pegasi | W. | 52 30 31 | 3039 | 53 59 55 | 3039 | 55 29 20 | 3038 | 56 58 4 |
| | Mars | W. | 48 22 57 | 3034 | 49 52 28 | 3042 | 51 21 49 | 3049 | 52 51 |
| | Pollux | E. | 69 49 30 | 2895 | 68 17 5 | 2906 | 66 44 54 | 2916 | 65 12 5 |
| | Regulus | E. | 106 19 42 | 2818 | 104 45 38 | 2827 | 103 11 45 | 2834 | 101 38 |
| 11 | Venus | W. | 107 25 58 | 3294 | 108 50 16 | 3304 | 110 14 23 | 3312 | 111 38 2 |
| | Saturn | W. | 99 1 24 | 2916 | 100 33 22 | 2924 | 102 5 11 | 2931 | 103 36 5 |
| | α Pegasi | W. | 64 25 40 | 3046 | 65 54 56 | 3050 | 67 24 7 | 3052 | 68 53 1 |
| | Mars | W. | 60 14 47 | 3093 | 61 43 5 | 3100 | 63 11 15 | 3106 | 64 39 1 |
| | Jupiter | W. | 22 37 35 | 2872 | 24 10 30 | 2875 | 25 43 21 | 2880 | 27 16 |
| | Pollux | E. | 57 36 33 | 2983 | 56 5 59 | 2995 | 54 35 40 | 3007 | 53 5 3 |
| | Regulus | E. | 93 51 53 | 2880 | 92 19 8 | 2887 | 90 46 32 | 2894 | 89 14 |
| 12 | Mars | W. | 71 57 15 | 3148 | 73 24 26 | 3155 | 74 51 29 | 3163 | 76 18 2 |
| | Jupiter | W. | 34 58 7 | 2913 | 36 30 10 | 2918 | 38 2 6 | 2924 | 39 33 5 |
| | α Arietis | W. | 32 40 14 | 3096 | 34 8 28 | 3089 | 35 36 51 | 3084 | 37 5 2 |
| | Pollux | E. | 45 39 25 | 3092 | 44 11 5 | 3108 | 42 43 5 | 3126 | 41 15 2 |
| | Regulus | E. | 81 34 10 | 2936 | 80 2 37 | 2943 | 78 31 13 | 2950 | 76 59 5 |
| 13 | Mars | W. | 83 30 59 | 3200 | 84 57 8 | 3207 | 86 23 9 | 3214 | 87 49 |
| | Jupiter | W. | 47 11 3 | 2959 | 48 42 7 | 2965 | 50 13 4 | 2971 | 51 43 5 |
| | α Arietis | W. | 44 28 35 | 3074 | 45 57 17 | 3074 | 47 25 58 | 3075 | 48 54 3 |
| | Pollux | E. | 34 3 32 | 3265 | 32 38 39 | 3297 | 31 14 24 | 3332 | 29 50 4 |
| | Regulus | E. | 69 25 48 | 2989 | 67 55 22 | 2996 | 66 25 5 | 3003 | 64 54 5 |
| 14 | Mars | W. | 94 56 47 | 3248 | 96 21 59 | 3253 | 97 47 6 | 3258 | 99 12 |
| | Jupiter | W. | 59 16 19 | 3002 | 60 46 29 | 3008 | 62 16 32 | 3013 | 63 46 2 |
| | α Arietis | W. | 56 17 24 | 3087 | 57 45 49 | 3090 | 59 14 11 | 3093 | 60 42 2 |
| | Regulus | E. | 57 26 7 | 3040 | 55 56 44 | 3046 | 54 27 28 | 3053 | 52 58 2 |
| | Spica ♍ | E. | 111 7 43 | 3011 | 109 37 44 | 3016 | 108 7 51 | 3022 | 106 38 |
| 15 | Mars | W. | 106 15 42 | 3287 | 107 40 8 | 3291 | 109 4 30 | 3294 | 110 28 4 |
| | Jupiter | W. | 71 14 49 | 3039 | 72 44 13 | 3043 | 74 13 33 | 3047 | 75 42 4 |
| | α Arietis | W. | 68 3 10 | 3110 | 69 31 8 | 3112 | 70 59 3 | 3115 | 72 26 5 |
| | Aldebaran | W. | 34 34 21 | 3074 | 36 3 3 | 3075 | 37 31 43 | 3077 | 39 0 2 |
| | Regulus | E. | 45 34 32 | 3088 | 44 6 8 | 3095 | 42 37 52 | 3100 | 41 9 4 |
| | Spica ♍ | E. | 99 10 39 | 3048 | 97 41 25 | 3052 | 96 12 16 | 3055 | 94 43 1 |
| 16 | Jupiter | W. | 83 8 3 | 3065 | 84 36 56 | 3067 | 86 5 46 | 3069 | 87 34 3 |
| | α Arietis | W. | 79 45 32 | 3128 | 81 13 8 | 3129 | 82 40 42 | 3130 | 84 8 1 |
| | Aldebaran | W. | 46 22 54 | 3088 | 47 51 18 | 3089 | 49 19 41 | 3091 | 50 48 |
| | Regulus | E. | 33 50 55 | 3140 | 32 23 34 | 3148 | 30 56 23 | 3157 | 29 29 2 |
| | Spica ♍ | E. | 87 18 46 | 3073 | 85 50 3 | 3074 | 84 21 22 | 3077 | 82 52 4 |

## MEAN TIME.

### LUNAR DISTANCES.

| tar's Name and Position. | | Midnight. | P.L. of diff. | XV h. | P.L. of diff. | XVIII h. | P.L. of diff. | XXI h. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| lux | E. | 88 35 16 | 2776 | 87 0 16 | 2785 | 85 25 29 | 2795 | 83 50 54 | 2805 |
| ıus | W. | 90 21 13 | 3189 | 91 47 35 | 3198 | 93 13 46 | 3207 | 94 39 47 | 3217 |
| urn | W. | 80 24 18 | 2818 | 81 58 22 | 2827 | 83 32 15 | 2835 | 85 5 57 | 2843 |
| nalhaut | W. | 65 41 6 | 3333 | 67 4 39 | 3330 | 68 28 16 | 3326 | 69 51 58 | 3323 |
| rs | W. | 42 23 25 | 3005 | 43 53 32 | 3013 | 45 23 29 | 3019 | 46 53 18 | 3027 |
| lebaran | E. | 33 11 33 | 2792 | 31 36 55 | 2804 | 30 2 32 | 2815 | 28 28 24 | 2827 |
| lux | E. | 76 1 17 | 2856 | 74 28 1 | 2865 | 72 54 57 | 2876 | 71 22 7 | 2886 |
| ıus | W. | 101 47 9 | 3261 | 103 12 6 | 3269 | 104 36 54 | 3278 | 106 1 31 | 3286 |
| urn | W. | 92 51 48 | 2884 | 94 24 27 | 2892 | 95 56 56 | 2900 | 97 29 15 | 2908 |
| 'egasi | W. | 58 28 12 | 3039 | 59 57 37 | 3040 | 61 27 0 | 3041 | 62 56 22 | 3044 |
| rs | W. | 54 20 4 | 3064 | 55 48 58 | 3071 | 57 17 43 | 3078 | 58 46 19 | 3085 |
| lux | E. | 63 41 12 | 2938 | 62 9 41 | 2949 | 60 38 24 | 2961 | 59 7 22 | 2971 |
| gulus | E. | 100 4 28 | 2850 | 98 31 5 | 2857 | 96 57 51 | 2865 | 95 24 47 | 2873 |
| ıus | W. | 113 2 9 | 3328 | 114 25 48 | 3337 | 115 49 17 | 3345 | 117 12 36 | 3353 |
| urn | W. | 105 8 20 | 2946 | 106 39 40 | 2954 | 108 10 51 | 2962 | 109 41 51 | 2969 |
| 'egasi | W. | 70 22 19 | 3059 | 71 51 18 | 3063 | 73 20 12 | 3068 | 74 49 0 | 3073 |
| rs | W. | 66 7 9 | 3121 | 67 34 53 | 3128 | 69 2 29 | 3135 | 70 29 56 | 3142 |
| piter | W. | 28 48 43 | 2890 | 30 21 15 | 2895 | 31 53 40 | 2902 | 33 25 57 | 2907 |
| llux | E. | 51 35 48 | 3033 | 50 6 16 | 3047 | 48 37 1 | 3061 | 47 8 4 | 3076 |
| gulus | E. | 87 41 49 | 2908 | 86 9 40 | 2916 | 84 37 41 | 2923 | 83 5 51 | 2930 |
| ırs | W. | 77 45 10 | 3175 | 79 11 49 | 3182 | 80 38 20 | 3188 | 82 4 43 | 3194 |
| piter | W. | 41 5 35 | 2936 | 42 37 8 | 2942 | 44 8 34 | 2948 | 45 39 52 | 2954 |
| Arietis | W. | 38 33 54 | 3077 | 40 2 32 | 3075 | 41 31 12 | 3074 | 42 59 53 | 3074 |
| llux | E. | 39 48 11 | 3165 | 38 21 20 | 3187 | 36 54 55 | 3210 | 35 28 58 | 3237 |
| gulus | E. | 75 28 51 | 2964 | 73 57 53 | 2970 | 72 27 3 | 2977 | 70 56 21 | 2984 |
| ırs | W. | 89 14 49 | 3225 | 90 40 28 | 3231 | 92 6 1 | 3237 | 93 31 27 | 3242 |
| piter | W. | 53 14 36 | 2981 | 54 45 12 | 2987 | 56 15 41 | 2993 | 57 46 3 | 2998 |
| Arietis | W. | 50 23 16 | 3078 | 51 51 52 | 3080 | 53 20 26 | 3083 | 54 48 56 | 3085 |
| llux | E. | 28 28 0 | 3416 | 27 6 2 | 3468 | 25 45 3 | 3528 | 24 25 10 | 3599 |
| gulus | E. | 63 24 54 | 3016 | 61 55 1 | 3022 | 60 25 15 | 3028 | 58 55 37 | 3035 |
| ırs | W. | 100 37 1 | 3269 | 102 1 49 | 3273 | 103 26 32 | 3278 | 104 51 9 | 3282 |
| piter | W. | 65 16 20 | 3022 | 66 46 5 | 3026 | 68 15 45 | 3030 | 69 45 20 | 3035 |
| Arietis | W. | 62 10 44 | 3099 | 63 38 55 | 3101 | 65 7 3 | 3104 | 66 35 8 | 3106 |
| gulus | E. | 51 29 20 | 3065 | 50 0 27 | 3070 | 48 31 41 | 3077 | 47 3 3 | 3083 |
| ica ♏ | E. | 105 8 25 | 3030 | 103 38 50 | 3035 | 102 9 21 | 3039 | 100 39 57 | 3044 |
| ırs | W. | 111 53 1 | 3303 | 113 17 9 | 3306 | 114 41 14 | 3309 | 116 5 15 | 3313 |
| piter | W. | 77 11 58 | 3053 | 78 41 5 | 3056 | 80 10 8 | 3059 | 81 39 7 | 3062 |
| Arietis | W. | 73 54 44 | 3119 | 75 22 30 | 3122 | 76 50 13 | 3124 | 78 17 54 | 3126 |
| lebaran | W. | 40 28 56 | 3081 | 41 57 29 | 3083 | 43 25 59 | 3084 | 44 54 28 | 3087 |
| gulus | E. | 39 41 41 | 3113 | 38 13 47 | 3120 | 36 46 2 | 3126 | 35 18 24 | 3133 |
| ica ♏ | E. | 93 14 11 | 3062 | 91 45 15 | 3065 | 90 16 22 | 3067 | 88 47 32 | 3070 |
| piter | W. | 89 3 20 | 3072 | 90 32 4 | 3073 | 92 0 47 | 3074 | 93 29 28 | 3074 |
| Arietis | W. | 85 35 45 | 3132 | 87 3 15 | 3134 | 88 30 43 | 3134 | 89 58 11 | 3135 |
| lebaran | W. | 52 16 22 | 3092 | 53 44 41 | 3092 | 55 13 0 | 3093 | 56 41 18 | 3093 |
| gulus | E. | 28 2 32 | 3176 | 26 35 54 | 3188 | 25 9 31 | 3200 | 23 43 22 | 3216 |
| ica ♏ | E. | 81 24 7 | 3079 | 79 55 32 | 3080 | 78 26 58 | 3081 | 76 58 25 | 3082 |

## MEAN TIME.

### LUNAR DISTANCES.

| Day of the Month. | Star's Name and Position. | | Noon. | P.L. of diff. | III h. | P.L. of diff. | VI h. | P.L. of diff. | IX h. |
|---|---|---|---|---|---|---|---|---|---|
| | | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ |
| 17 | Jupiter | W. | 94 58 9 | 3074 | 96 26 50 | 3075 | 97 55 30 | 3074 | 99 24 1 |
| | α Arietis | W. | 91 25 38 | 3135 | 92 53 5 | 3135 | 94 20 32 | 3135 | 95 47 3 |
| | Aldebaran | W. | 58 9 36 | 3092 | 59 37 55 | 3092 | 61 6 14 | 3091 | 62 34 3 |
| | Spica ♍ | E. | 75 29 53 | 3082 | 74 1 20 | 3082 | 72 32 48 | 3080 | 71 4 1 |
| | Sun | E. | 139 8 44 | 3488 | 137 48 6 | 3487 | 136 27 27 | 3485 | 135 6 4 |
| 18 | Jupiter | W. | 106 47 57 | 3065 | 108 16 50 | 3063 | 109 45 45 | 3059 | 111 14 4 |
| | Aldebaran | W. | 69 56 45 | 3080 | 71 25 19 | 3076 | 72 53 58 | 3073 | 74 22 4 |
| | Pollux | W. | 29 16 49 | 3437 | 30 38 24 | 3404 | 32 0 36 | 3373 | 33 23 2 |
| | Spica ♍ | E. | 63 41 4 | 3070 | 62 12 18 | 3067 | 60 43 28 | 3064 | 59 14 3 |
| | Sun | E. | 128 22 51 | 3472 | 127 1 55 | 3468 | 125 40 55 | 3463 | 124 19 5 |
| 19 | Aldebaran | W. | 81 47 37 | 3043 | 83 16 56 | 3037 | 84 46 23 | 3030 | 86 15 3 |
| | Pollux | W. | 40 24 19 | 3239 | 41 49 42 | 3221 | 43 15 26 | 3204 | 44 41 3 |
| | Spica ♍ | E. | 51 48 45 | 3035 | 50 19 16 | 3029 | 48 49 39 | 3022 | 47 19 5 |
| | Sun | E. | 117 33 5 | 3431 | 116 11 24 | 3424 | 114 49 35 | 3417 | 113 27 3 |
| 20 | Aldebaran | W. | 93 46 15 | 2981 | 95 16 51 | 2972 | 96 47 39 | 2962 | 98 18 4 |
| | Pollux | W. | 51 56 35 | 3110 | 53 24 32 | 3096 | 54 52 46 | 3081 | 56 21 1 |
| | Spica ♍ | E. | 39 48 46 | 2973 | 38 17 59 | 2964 | 36 47 1 | 2954 | 35 15 5 |
| | Sun | E. | 106 35 29 | 3364 | 105 12 31 | 3352 | 103 49 20 | 3342 | 102 25 5 |
| 21 | Pollux | W. | 63 48 41 | 2989 | 65 19 7 | 2974 | 66 49 52 | 2958 | 68 20 5 |
| | Regulus | W. | 26 46 58 | 2979 | 28 17 37 | 2958 | 29 48 42 | 2935 | 31 20 1 |
| | Spica ♍ | E. | 27 36 24 | 2884 | 26 3 45 | 2870 | 24 30 48 | 2858 | 22 57 3 |
| | Sun | E. | 95 25 31 | 3266 | 94 0 40 | 3252 | 92 35 32 | 3237 | 91 10 |
| 22 | Pollux | W. | 76 1 32 | 2859 | 77 34 43 | 2842 | 79 8 16 | 2825 | 80 42 1 |
| | Regulus | W. | 39 4 26 | 2818 | 40 38 31 | 2798 | 42 13 1 | 2779 | 43 47 5 |
| | Sun | E. | 83 58 24 | 3142 | 82 31 5 | 3124 | 81 3 24 | 3106 | 79 35 2 |
| 23 | Pollux | W. | 88 37 39 | 2717 | 90 13 56 | 2699 | 91 50 37 | 2681 | 93 27 4 |
| | Regulus | W. | 51 48 53 | 2663 | 53 26 23 | 2643 | 55 4 19 | 2624 | 56 42 4 |
| | Sun | E. | 72 9 33 | 2994 | 70 39 13 | 2974 | 69 8 28 | 2954 | 67 37 1 |
| 24 | Regulus | W. | 65 1 21 | 2505 | 66 42 28 | 2485 | 68 24 3 | 2465 | 70 6 |
| | Spica ♍ | W. | 11 2 23 | 2481 | 12 44 3 | 2461 | 14 26 11 | 2442 | 16 8 4 |
| | Sun | E. | 59 55 8 | 2835 | 58 21 25 | 2813 | 56 47 14 | 2794 | 55 12 3 |
| 25 | Regulus | W. | 78 43 16 | 2348 | 80 28 6 | 2329 | 82 13 23 | 2311 | 83 59 |
| | Spica ♍ | W. | 24 48 31 | 2328 | 26 33 50 | 2309 | 28 19 37 | 2291 | 30 5 5 |
| | Sun | E. | 47 12 59 | 2675 | 45 35 45 | 2656 | 43 58 6 | 2638 | 42 20 |
| 26 | Regulus | W. | 92 54 20 | 2206 | 94 42 39 | 2190 | 96 31 21 | 2175 | 98 20 27 |
| | Spica ♍ | W. | 39 3 32 | 2186 | 40 52 21 | 2170 | 42 41 34 | 2155 | 44 31 1 |
| | Sun | E. | 34 3 47 | 2538 | 32 23 27 | 2524 | 30 42 47 | 2512 | 29 1 5 |
| 30 | Sun | W. | 22 32 50 | 2366 | 24 17 13 | 2365 | 26 1 38 | 2366 | 27 46 2 |
| | Mars | E. | 64 33 1 | 2185 | 62 44 11 | 2193 | 60 55 33 | 2200 | 59 7 5 |
| | Jupiter | E. | 90 12 54 | 2003 | 88 19 25 | 2010 | 86 26 6 | 2017 | 84 32 58 |
| | α Arietis | E. | 93 48 39 | 2050 | 91 56 23 | 2056 | 90 4 16 | 2063 | 88 12 20 |
| 31 | Sun | W. | 36 26 21 | 2403 | 38 9 52 | 2414 | 39 53 7 | 2425 | 41 36 6 |
| | Mars | E. | 50 8 22 | 2262 | 48 21 27 | 2274 | 46 34 50 | 2288 | 44 48 33 |
| | Jupiter | E. | 75 10 49 | 2075 | 73 19 11 | 2087 | 71 27 51 | 2099 | 69 36 51 |
| | α Arietis | E. | 78 56 11 | 2122 | 77 5 46 | 2135 | 75 15 41 | 2149 | 73 25 56 |

## MEAN TIME.

### LUNAR DISTANCES.

| 's Name and sition. | | Midnight. | P.L. of diff. | XV$^h$. | P.L. of diff. | XVIII$^h$. | P.L. of diff. | XXI$^h$. | P.L. of diff. |
|---|---|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | | ° ′ ″ | |
| er | W. | 100 52 53 | 3072 | 102 21 37 | 3072 | 103 50 21 | 3069 | 105 19 8 | 3068 |
| etis | W. | 97 15 27 | 3133 | 98 42 56 | 3132 | 100 10 26 | 3131 | 101 37 58 | 3129 |
| paran | W. | 64 2 56 | 3088 | 65 31 20 | 3087 | 66 59 45 | 3085 | 68 28 13 | 3082 |
| ♃ | E. | 69 35 40 | 3078 | 68 7 4 | 3077 | 66 38 27 | 3075 | 65 9 47 | 3073 |
| | E. | 133 46 4 | 3481 | 132 25 19 | 3480 | 131 4 33 | 3477 | 129 43 43 | 3475 |
| er | W. | 112 43 49 | 3052 | 114 12 57 | 3048 | 115 42 11 | 3043 | 117 11 31 | 3038 |
| paran | W. | 75 51 29 | 3065 | 77 20 22 | 3061 | 78 49 20 | 3055 | 80 18 25 | 3049 |
| x | W. | 34 46 41 | 3321 | 36 10 28 | 3299 | 37 34 41 | 3277 | 38 59 19 | 3258 |
| ♃ | E. | 57 45 36 | 3056 | 56 16 32 | 3052 | 54 47 23 | 3046 | 53 18 7 | 3041 |
| | E. | 122 58 41 | 3455 | 121 37 26 | 3449 | 120 16 5 | 3444 | 118 54 38 | 3439 |
| paran | W. | 87 45 41 | 3016 | 89 15 34 | 3008 | 90 45 37 | 2999 | 92 15 51 | 2991 |
| x | W. | 46 7 53 | 3172 | 47 34 36 | 3157 | 49 1 37 | 3141 | 50 28 57 | 3126 |
| ♃ | E. | 45 50 0 | 3008 | 44 19 57 | 3000 | 42 49 44 | 2991 | 41 19 20 | 2983 |
| | E. | 112 5 32 | 3401 | 110 43 17 | 3392 | 109 20 51 | 3384 | 107 58 16 | 3373 |
| paran | W. | 99 49 53 | 2940 | 101 21 21 | 2929 | 102 53 3 | 2918 | 104 24 59 | 2905 |
| x | W. | 57 50 10 | 3051 | 59 19 20 | 3036 | 60 48 48 | 3021 | 62 18 35 | 3006 |
| ♃ | E. | 33 44 26 | 2932 | 32 12 48 | 2920 | 30 40 55 | 2909 | 29 8 47 | 2897 |
| | E. | 101 2 21 | 3318 | 99 38 30 | 3307 | 98 14 26 | 3293 | 96 50 6 | 3280 |
| x | W. | 69 52 22 | 2926 | 71 24 8 | 2909 | 72 56 15 | 2893 | 74 28 43 | 2877 |
| ilus | W. | 32 52 16 | 2895 | 34 24 41 | 2876 | 35 57 31 | 2856 | 37 30 46 | 2837 |
| ♃ | E. | 21 24 3 | 2829 | 19 50 13 | 2815 | 18 16 4 | 2800 | 16 41 36 | 2785 |
| | E. | 89 44 24 | 3207 | 88 18 23 | 3191 | 86 52 3 | 3175 | 85 25 24 | 3158 |
| x | W. | 82 16 31 | 2790 | 83 51 12 | 2772 | 85 26 17 | 2753 | 87 1 46 | 2735 |
| ilus | W. | 45 23 16 | 2741 | 46 59 2 | 2722 | 48 35 13 | 2702 | 50 11 50 | 2683 |
| | E. | 78 6 58 | 3069 | 76 38 11 | 3052 | 75 9 2 | 3033 | 73 39 30 | 3013 |
| x | W. | 95 5 13 | 2644 | 96 43 9 | 2626 | 98 21 29 | 2607 | 100 0 14 | 2589 |
| ilus | W. | 58 21 31 | 2585 | 60 0 47 | 2564 | 61 40 31 | 2545 | 63 20 42 | 2525 |
| | E. | 66 5 44 | 2914 | 64 33 43 | 2895 | 63 1 18 | 2874 | 61 28 26 | 2854 |
| ilus | W. | 71 48 36 | 2426 | 73 31 34 | 2405 | 75 15 1 | 2387 | 76 58 55 | 2368 |
| ♃ | W. | 17 51 48 | 2404 | 19 35 17 | 2384 | 21 19 15 | 2366 | 23 3 39 | 2346 |
| | E. | 53 37 34 | 2753 | 52 2 5 | 2733 | 50 26 9 | 2714 | 48 49 47 | 2694 |
| ilus | W. | 85 45 17 | 2274 | 87 31 55 | 2257 | 89 18 58 | 2239 | 91 6 27 | 2223 |
| ♃ | W. | 31 52 30 | 2254 | 33 39 37 | 2237 | 35 27 10 | 2219 | 37 15 9 | 2203 |
| | E. | 40 41 33 | 2602 | 39 2 41 | 2585 | 37 23 25 | 2569 | 35 43 47 | 2553 |
| ilus | W. | 100 9 57 | 2145 | 101 59 47 | 2131 | 103 49 59 | 2118 | 105 40 31 | 2105 |
| ♃ | W. | 46 21 10 | 2124 | 48 11 32 | 2110 | 50 2 15 | 2096 | 51 53 20 | 2084 |
| | E. | 27 20 37 | 2490 | 25 39 10 | 2482 | 23 57 32 | 2477 | 22 15 46 | 2474 |
| | W. | 29 30 23 | 2373 | 31 14 37 | 2378 | 32 58 43 | 2386 | 34 42 38 | 2394 |
| | E. | 57 18 51 | 2218 | 55 30 50 | 2229 | 53 43 5 | 2239 | 51 55 35 | 2250 |
| er | E. | 82 40 3 | 2034 | 80 47 22 | 2043 | 78 54 55 | 2053 | 77 2 43 | 2064 |
| etis | E. | 86 20 37 | 2080 | 84 29 7 | 2090 | 82 37 52 | 2100 | 80 46 53 | 2111 |
| | W. | 43 18 49 | 2449 | 45 1 14 | 2463 | 46 43 20 | 2477 | 48 25 6 | 2490 |
| | E. | 43 2 36 | 2317 | 41 17 1 | 2331 | 39 31 47 | 2347 | 37 46 56 | 2364 |
| er | E. | 67 46 10 | 2125 | 65 55 49 | 2139 | 64 5 50 | 2153 | 62 16 11 | 2168 |
| etis | E. | 71 36 31 | 2176 | 69 47 28 | 2192 | 67 58 48 | 2207 | 66 10 31 | 2223 |

## CONFIGURATIONS OF THE SATELLITES OF JUPITE

### At 8h 30m, Mean Time.

| Day of the Month. | West. | East. |
|---|---|---|
| 1 | ·2 3· ·4 | ○ ·1 |
| 2 | 3· ·1 | ○ ·2 ·4 |
| 3 | ·3 | ○ 2· 1· ·4 |
| 4 | ·2 ·1 ·3 | ○ ·4 |
| 5 | ·2 ● | ○ 1· ·3 ·4 |
| 6 | ·1 ● | ○ 2· ·3 4· |
| 7 | 2· 1· | ○ 3· 4· |
| 8 | 3· ○ ·2 | ○ ·1 4· |
| 9 | 3· 1· | ○ 4· ·2 |
| 10 | ·3 4· | ○ 2· 1. |
| 11 | 4· 2· ·3 ·1 | ○ |
| 12 | 4· | ○ 1· ·3 |
| 13 | 4· ·1 | ○ 2· ·3 |
| 14 | ·4 2· | ○ 3· |
| 15 | ·4 ·2 | ○ 3· ·1 |
| 16 | ·4 3· 1· | ○ ·2 |
| 17 | ·3 ·4 | ○ 2· ·1 |
| 18 | 2· ·3 ·1 | ○ ·4 |
| 19 | ·2 | ○ 1· ·3 ·4 |
| 20 | ·1 | ○ 2. ·3 ·4 |
| 21 | 2· 1 | ○ · 3· ·4 |
| 22 | ·1 ● ·2 | ○ 3· 4. |
| 23 | 3· 1· | ○ ·2 4· |
| 24 | ·3 | ○ 2· ·1 4· |
| 25 | ·3 2· ·1 | ○ 4· |
| 26 | ·2 | ○ 4· ·3 1· |
| 27 | 4· ·1 | ○ 2. ·3 |
| 28 | 4· | ○ 1· 3· |
| 29 | 4· ·2 | ○ 3· |
| 30 | 4· 3· 1· | ○ ·2 |
| 31 | ·4 3· | ○ ·1 2· |

This Table represents, at 8h 30m after *Mean Noon* of each day of the month, the relative po of the images of Jupiter and his Satellites, as they would appear (disregarding their latitud an inverting telescope. Jupiter is indicated by the white circles (○) in the centre of the the Satellites by points. The numerals 1, 2, 3, and 4, annexed to the points, serve to disti the Satellites from each other; and their positions are such as to indicate the directions of the lites' motions, which are in all cases to be considered as *towards the numerals*. When a Sate at its greatest elongation, the point is placed above or below the centre of the numeral. A circle (○) at the left or right hand of the page, denotes that the Satellite placed by the side on the disc of Jupiter, and a black circle (●) that it is either *behind* the disc, or in the shad Jupiter.

## ECLIPSES OF THE SATELLITES OF JUPITER.

| ELLITE. | Day of the Month. | Mean Time. | Sidereal Time. | PHASE as seen in an inverting Telescope. |
|---|---|---|---|---|
| | | h m s | h m s | |
| I. | 1 | 3 16 42 ·2 | 19 58 2 ·6 | Em. |
| | 2 | 21 45 34 ·4 | 14 33 53 ·5 | Em. |
| | 4 | 16 14 32 ·1 | 9 9 49 ·9 | Em. |
| | 6* | 10 43 23 ·3 | 3 45 39 ·8 | Em. |
| | 8* | 5 12 22 ·5 | 22 21 37 ·8 | Em. |
| | 9 | 23 41 16 ·4 | 16 57 30 ·4 | Em. |
| | 11 | 18 10 15 ·5 | 11 33 28 ·3 | Em. |
| | 13* | 12 39 8 ·3 | 6 9 19 ·8 | Em. |
| | 15* | 7 8 9 ·1 | 0 45 19 ·3 | Em. |
| | 17 | 1 37 4 ·5 | 19 21 13 ·4 | Em. |
| | 18 | 20 6 5 ·2 | 13 57 12 ·9 | Em. |
| | 20† | 14 34 59 ·4 | 8 33 5 ·8 | Em. |
| | 22* | 9 4 1 ·1 | 3 9 6 ·2 | Em. |
| | 24 | 3 32 57 ·6 | 21 45 1 ·4 | Em. |
| | 25 | 22 1 59 ·5 | 16 21 2 ·1 | Em. |
| | 27 | 16 30 54 ·5 | 10 56 55 ·9 | Em. |
| | 29* | 10 59 57 ·5 | 5 32 57 ·5 | Em. |
| | 31* | 5 28 54 ·9 | 0 8 53 ·7 | Em. |
| II. | 1 | 19 43 35 ·5 | 12 27 38 ·0 | Em. |
| | 5* | 9 1 35 ·0 | 1 59 38 ·3 | Em. |
| | 8 | 22 19 33 ·8 | 15 31 37 ·8 | Em. |
| | 12* | 11 37 33 ·4 | 5 3 38 ·2 | Em. |
| | 16 | 0 55 31 ·3 | 18 35 36 ·8 | Em. |
| | 19† | 14 13 30 ·8 | 8 7 37 ·1 | Em. |
| | 23 | 3 31 28 ·4 | 21 39 35 ·5 | Em. |
| | 26 | 16 49 27 ·8 | 11 11 35 ·6 | Em. |
| | 30* | 6 7 24 ·7 | 0 43 33 ·3 | Em. |
| III. | 4 | 20 48 15 ·0 | 13 44 17 ·8 | Im. |
| | 4 | 22 52 26 ·7 | 15 48 49 ·9 | Em. |
| | 12 | 0 50 47 ·9 | 18 15 6 ·4 | Im. |
| | 12 | 2 54 35 ·6 | 20 19 14 ·5 | Em. |
| | 19* | 4 52 55 ·3 | 22 45 29 ·5 | Im. |
| | 19* | 6 56 21 ·1 | 0 49 15 ·6 | Em. |
| | 26* | 8 54 59 ·4 | 3 15 49 ·3 | Im. |
| | 26* | 10 58 4 ·9 | 5 19 15 ·0 | Em. |



## APPROXIMATE SIDEREAL TIMES
OF THE
## OCCULTATIONS OF JUPITER'S SATELLITES BY JUPITER,
AND OF THE
## TRANSITS OF THE SATELLITES AND THEIR SHADOWS OVER THE DISC OF THE PLANET.

| Satellite. | Occultations. | | Transits of Satellites. | | Transits of Shado | |
|---|---|---|---|---|---|---|
| | Immersion. | Emersion. | Ingress. | Egress. | Ingress. | Egre |
| | d h m | d h m | d h m | d h m | d h m | d h |
| I. | 1 16 59 | | 1 14 20 | 1 16 32 | 1 15 10 | 2 17 |
| | 2 11 33 | | 3† 8 54 | 3 11 6 | 3 9 46 | 3 11 |
| | 4* 6 6 | | 5* 3 27 | 5* 5 40 | 5* 4 22 | 5* 6 |
| | 6* 0 40 | | 7* 22 1 | 7* 0 14 | 7* 22 57 | 7* 1 |
| | 8 19 14 | | 8 16 35 | 9 18 48 | 9 17 33 | 9 19 |
| | 9 13 48 | In | 10 11 9 | 10 13 22 | 10 12 9 | 10 14 |
| | 11† 8 23 | | 12* 5 43 | 12* 7 56 | 12* 6 45 | 12† 8 |
| | 13* 2 57 | | 14* 0 17 | 14* 2 30 | 14* 1 21 | 14* 3 |
| | 15† 21 31 | the | 16 18 51 | 16 21 4 | 16 19 56 | 16† 22 |
| | 16 16 5 | | 17 13 26 | 17 15 38 | 17 14 32 | 17 16 |
| | 18 10 40 | | 19† 8 0 | 19 10 13 | 19 9 8 | 19 11 |
| | 20* 5 14 | Shadow. | 21* 2 34 | 21* 4 47 | 21* 3 44 | 21* 5 |
| | 22* 23 49 | | 23 21 9 | 23* 23 22 | 23† 22 20 | 23* 0 |
| | 24 18 23 | | 24 15 44 | 24 17 56 | 24 16 55 | 25 19 |
| | 25 12 58 | | 26 10 18 | 26 12 31 | 26 11 31 | 26 13 |
| | 27* 7 33 | | 28* 4 53 | 28* 7 6 | 28* 6 7 | 28† 8 |
| | 29* 2 8 | | 30† 23 28 | 30* 1 41 | 30* 0 43 | 30* 2 |
| | 31 20 43 | | 31 18 3 | 32 20 16 | | |
| II. | 1† 8 21 | | 3* 2 42 | 3* 5 12 | 3* 4 24 | 3* 6 |
| | 5* 21 45 | | 6 16 8 | 7 18 38 | 7 17 58 | 7 20 |
| | 8 11 9 | In | 10* 5 33 | 10† 8 3 | 10* 7 30 | 10 10 |
| | 12* 0 34 | | 14 19 0 | 14† 21 31 | 14 21 4 | 14* 23 |
| | 15 13 59 | the | 17† 8 26 | 17 10 57 | 17 10 37 | 17 13 |
| | 19* 3 25 | | 21† 21 55 | 21* 0 26 | 21* 0 11 | 21* 2 |
| | 22 16 51 | Shadow. | 24 11 22 | 24 13 54 | 24 13 43 | 24 16 |
| | 26* 6 19 | | 28* 0 52 | 28* 3 24 | 28* 3 18 | 28* 5 |
| | 30 19 47 | | 31 14 21 | 31 16 53 | 31 16 50 | 32 19 |
| III. | 4 10 2 | 4 12 18 | 1 20 7 | 1* 22 22 | 1* 23 23 | 1* 1 |
| | 11 14 0 | 11 16 20 | 8* 0 2 | 8* 2 20 | 8* 3 53 | 8* 6 |
| | 19 18 3 | 19 20 26 | 15* 4 2 | 15* 6 24 | 15† 8 23 | 15 10 |
| | 26 22 11 | 26* 0 37 | 22† 8 8 | 22 10 32 | 22 12 54 | 22 15 |
| | | | 29 12 18 | 29 14 45 | 29 17 24 | 30 19 |

| For correcting the Places of the Fixed Stars. At Mean Midnight, Logarithm of | | | | Mean Time of Transit of the First Point of Aries. | Mean Equinoctial Time, adding $0^d$·840658. | From Mean Noon of January 1. | |
|---|---|---|---|---|---|---|---|
| A | B | C | D | | Days. | Day of the Year. | Fraction of the Year. |
| | | | | h m s | | | |
| +0 ·8110 | +1 ·2810 | +0 ·0597 | +0 ·8412 | 7 17 59 ·97 | 253 | 334 | ·914 |
| 0 ·7896 | 1 ·2838 | 0 ·0609 | 0 ·8424 | 7 14 4 ·06 | 254 | 335 | ·917 |
| 0 ·7669 | 1 ·2864 | 0 ·0621 | 0 ·8435 | 7 10 8 ·15 | 255 | 336 | ·920 |
| +0 ·7428 | +1 ·2888 | +0 ·0633 | +0 ·8446 | 7 6 12 ·24 | 256 | 337 | ·923 |
| 0 ·7172 | 1 ·2911 | 0 ·0645 | 0 ·8456 | 7 2 16 ·33 | 257 | 338 | ·925 |
| 0 ·6898 | 1 ·2933 | 0 ·0658 | 0 ·8466 | 6 58 20 ·42 | 258 | 339 | ·928 |
| +0 ·6604 | +1 ·2953 | +0 ·0670 | +0 ·8476 | 6 54 24 ·51 | 259 | 340 | ·931 |
| 0 ·6287 | 1 ·2972 | 0 ·0682 | 0 ·8485 | 6 50 28 ·60 | 260 | 341 | ·934 |
| 0 ·5944 | 1 ·2990 | 0 ·0694 | 0 ·8494 | 6 46 32 ·68 | 261 | 342 | ·936 |
| +0 ·5570 | +1 ·3006 | +0 ·0707 | +0 ·8503 | 6 42 36 ·77 | 262 | 343 | ·939 |
| 0 ·5158 | 1 ·3020 | 0 ·0719 | 0 ·8511 | 6 38 40 ·86 | 263 | 344 | ·942 |
| 0 ·4702 | 1 ·3033 | 0 ·0731 | 0 ·8518 | 6 34 44 ·95 | 264 | 345 | ·945 |
| +0 ·4191 | +1 ·3045 | +0 ·0744 | +0 ·8526 | 6 30 49 ·04 | 265 | 346 | ·947 |
| 0 ·3610 | 1 ·3055 | 0 ·0756 | 0 ·8532 | 6 26 53 ·13 | 266 | 347 | ·950 |
| 0 ·2937 | 1 ·3064 | 0 ·0768 | 0 ·8539 | 6 22 57 ·21 | 267 | 348 | ·953 |
| +0 ·2139 | +1 ·3071 | +0 ·0780 | +0 ·8545 | 6 19 1 ·30 | 268 | 349 | ·956 |
| 0 ·1158 | 1 ·3077 | 0 ·0793 | 0 ·8550 | 6 15 5 ·39 | 269 | 350 | ·958 |
| 9 ·9887 | 1 ·3082 | 0 ·0805 | 0 ·8555 | 6 11 9 ·48 | 270 | 351 | ·961 |
| +9 ·8079 | +1 ·3085 | +0 ·0817 | +0 ·8560 | 6 7 13 ·57 | 271 | 352 | ·964 |
| +9 ·4923 | 1 ·3087 | 0 ·0829 | 0 ·8564 | 6 3 17 ·66 | 272 | 353 | ·966 |
| −8 ·3314 | 1 ·3088 | 0 ·0842 | 0 ·8568 | 5 59 21 ·75 | 273 | 354 | ·969 |
| −9 ·5485 | +1 ·3087 | +0 ·0854 | +0 ·8572 | 5 55 25 ·83 | 274 | 355 | ·972 |
| 9 ·8361 | 1 ·3085 | 0 ·0866 | 0 ·8575 | 5 51 29 ·92 | 275 | 356 | ·975 |
| 0 ·0076 | 1 ·3081 | 0 ·0878 | 0 ·8577 | 5 47 34 ·01 | 276 | 357 | ·977 |
| −0 ·1301 | +1 ·3076 | +0 ·0890 | +0 ·8580 | 5 43 38 ·10 | 277 | 358 | ·980 |
| 0 ·2254 | 1 ·3070 | 0 ·0902 | 0 ·8581 | 5 39 42 ·19 | 278 | 359 | ·983 |
| 0 ·3035 | 1 ·3062 | 0 ·0914 | 0 ·8583 | 5 35 46 ·28 | 279 | 360 | ·986 |
| −0 ·3695 | +1 ·3053 | +0 ·0926 | +0 ·8584 | 5 31 50 ·37 | 280 | 361 | ·988 |
| 0 ·4266 | 1 ·3043 | 0 ·0937 | 0 ·8584 | 5 27 54 ·46 | 281 | 362 | ·991 |
| 0 ·4770 | 1 ·3031 | 0 ·0949 | 0 ·8584 | 5 23 58 ·54 | 282 | 363 | ·994 |
| 0 ·5220 | 1 ·3018 | 0 ·0961 | 0 ·8584 | 5 20 2 ·63 | 283 | 364 | ·997 |
| −0 ·5627 | +1 ·3003 | +0 ·0972 | +0 ·8584 | 5 16 6 ·72 | 284 | 365 | 1 ·000 |

| 1845. | | Apparent Obliquity. | The Sun's Horizontal Parallax. | The Sun's Aberration. | Equation of Equinoxes. In Long. | Equation of Equinoxes. In A.R. (*in time.*) | Mean Longitude of ☊'s ascending Node |
|---|---|---|---|---|---|---|---|
| | | ° ′ ″ | ″ | ″ | ″ | s | ° |
| Jan. | 1 | 23 27 29 ·56 | 8 ·72 | — 20 ·71 | + 16 ·03 | + 0 ·98 | 242 51 |
| | 11 | 29 ·58 | 8 ·72 | 20 ·70 | 16 ·34 | 1 ·00 | 242 19 |
| | 21 | 29 ·64 | 8 ·71 | 20 ·68 | 16 ·53 | 1 ·01 | 241 48 |
| | 31 | 23 27 29 ·73 | 8 ·70 | 20 ·66 | 16 ·59 | 1 ·02 | 241 16 |
| Feb. | 10 | 29 ·84 | 8 ·69 | 20 ·62 | 16 ·49 | 1 ·01 | 240 44 |
| | 20 | 29 ·92 | 8 ·67 | 20 ·58 | 16 ·24 | 0 ·99 | 240 13 |
| March | 2 | 23 27 29 ·97 | 8 ·65 | 20 ·53 | 15 ·86 | 0 ·97 | 239 40 |
| | 12 | 29 ·97 | 8 ·63 | 20 ·47 | 15 ·39 | 0 ·94 | 239 9 |
| | 22 | 29 ·90 | 8 ·60 | 20 ·42 | 14 ·88 | 0 ·91 | 238 37 |
| April | 1 | 23 27 29 ·77 | 8 ·58 | 20 ·36 | 14 ·38 | 0 ·88 | 238 [illegible] |
| | 11 | 29 ·59 | 8 ·55 | 20 ·30 | 13 ·94 | 0 ·85 | 237 3[illegible] |
| | 21 | 29 ·35 | 8 ·53 | 20 ·24 | 13 ·59 | 0 ·83 | 237 [illegible] |
| May | 1 | 23 27 29 ·09 | 8 ·51 | 20 ·19 | 13 ·37 | 0 ·82 | 236 3[illegible] |
| | 11 | 28 ·82 | 8 ·49 | 20 ·14 | 13 ·30 | 0 ·81 | 235 5[illegible] |
| | 21 | 28 ·57 | 8 ·47 | 20 ·10 | 13 ·36 | 0 ·82 | 235 2[illegible] |
| | 31 | 23 27 28 ·35 | 8 ·46 | 20 ·07 | 13 ·54 | 0 ·83 | 234 5[illegible] |
| June | 10 | 28 ·17 | 8 ·45 | 20 ·05 | 13 ·81 | 0 ·85 | 234 2[illegible] |
| | 20 | 28 ·05 | 8 ·44 | 20 ·03 | 14 ·12 | 0 ·86 | 233 5[illegible] |
| | 30 | 23 27 27 ·99 | 8 ·44 | 20 ·02 | 14 ·44 | 0 ·88 | 233 1[illegible] |
| July | 10 | 27 ·99 | 8 ·44 | 20 ·03 | 14 ·72 | 0 ·90 | 232 4[illegible] |
| | 20 | 28 ·04 | 8 ·45 | 20 ·04 | 14 ·91 | 0 ·91 | 232 1[illegible] |
| | 30 | 23 27 28 ·12 | 8 ·45 | 20 ·06 | 14 ·99 | 0 ·92 | 231 4[illegible] |
| Aug. | 9 | 28 ·22 | 8 ·46 | 20 ·09 | 14 ·94 | 0 ·91 | 231 1[illegible] |
| | 19 | 28 ·31 | 8 ·48 | 20 ·13 | 14 ·75 | 0 ·90 | 230 4[illegible] |
| | 29 | 23 27 28 ·39 | 8 ·50 | 20 ·17 | 14 ·42 | 0 ·88 | 230 [illegible] |
| Sept. | 8 | 28 ·42 | 8 ·52 | 20 ·22 | 13 ·99 | 0 ·86 | 229 3[illegible] |
| | 18 | 28 ·40 | 8 ·54 | 20 ·28 | 13 ·48 | 0 ·82 | 229 [illegible] |
| | 28 | 23 27 28 ·32 | 8 ·57 | 20 ·34 | 12 ·95 | 0 ·79 | 228 3[illegible] |
| Oct. | 8 | 28 ·18 | 8 ·59 | 20 ·40 | 12 ·44 | 0 ·76 | 228 [illegible] |
| | 18 | 27 ·98 | 8 ·62 | 20 ·45 | 12 ·00 | 0 ·73 | 227 3[illegible] |
| | 28 | 23 27 27 ·74 | 8 ·64 | 20 ·51 | 11 ·67 | 0 ·71 | 226 5[illegible] |
| Nov. | 7 | 27 ·48 | 8 ·66 | 20 ·56 | 11 ·49 | 0 ·70 | 226 2[illegible] |
| | 17 | 27 ·22 | 8 ·68 | 20 ·61 | 11 ·45 | 0 ·70 | 225 5[illegible] |
| | 27 | 23 27 26 ·98 | 8 ·70 | 20 ·65 | 11 ·56 | 0 ·71 | 225 2[illegible] |
| Dec. | 7 | 26 ·78 | 8 ·71 | 20 ·68 | 11 ·79 | 0 ·72 | 224 5[illegible] |
| | 17 | 26 ·64 | 8 ·72 | 20 ·70 | 12 ·10 | 0 ·74 | 224 1[illegible] |
| | 27 | 23 27 26 ·57 | 8 ·72 | 20 ·71 | 12 ·42 | 0 ·76 | 223 4[illegible] |
| | 37 | 23 27 26 ·57 | 8 ·72 | — 20 ·71 | + 12 ·72 | + 0 ·78 | 223 1[illegible] |

Mean Obliquity, Jan. 1, 1845 = 23° 27′ 34″·24.

Daily M[illegible] — 3[illegible]

# EPHEMERIS

OF

# THE PLANETS.

# JANUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 20 4 59·89 | S. 20 28 30·3 | 9·9315209 | 1 20·8 | 43 54 26·9 | S. 0 18 58·9 | 9·49 |
| 2 | 20 5 53·27 | 20 8 50·4 | ·9184183 | 1 17·8 | 49 57 17·5 | N. 0 25 34·3 | ·49 |
| 3 | 20 6 1·12 | 19 50 28·4 | ·9053432 | 1 13·9 | 56 5 56·9 | 1 10 32·2 | ·49 |
| 4 | 20 5 21·16 | 19 33 42·9 | ·8924782 | 1 9·3 | 62 19 17·5 | 1 55 13·3 | ·48 |
| 5 | 20 3 52·11 | 19 18 49·5 | ·8800359 | 1 3·8 | 68 36 2·1 | 2 38 53·9 | ·48 |
| 6 | 20 1 34·03 | 19 6 1·6 | ·8682531 | 0 57·6 | 74 54 46·0 | 3 20 50·1 | ·48 |
| 7 | 19 58 28·52 | 18 55 28·2 | ·8573817 | 0 50·6 | 81 14 1·0 | 4 0 20·4 | ·48 |
| 8 | 19 54 39·11 | 18 47 14·5 | ·8476768 | 0 42·8 | 87 32 15·6 | 4 36 46·8 | ·48 |
| 9 | 19 50 11·23 | 18 41 20·4 | ·8393784 | 0 34·5 | 93 47 59·5 | 5 9 37·5 | ·49 |
| 10 | 19 45 12·18 | 18 37 42·0 | ·8326937 | 0 25·6 | 99 59 47·8 | 5 38 27·6 | ·49 |
| 11 | 19 39 50·82 | 18 36 11·3 | ·8277805 | 0 16·3 | 106 6 20·8 | 6 3 0·1 | ·49 |
| 12 | 19 34 17·11 | 18 36 37·5 | ·8247327 | {0 6·0 / 23 57·4} | 112 6 27·6 | 6 23 5·9 | ·50 |
| 13 | 19 28 41·34 | 18 38 48·2 | ·8235733 | 23 48·1 | 117 59 8·2 | 6 38 43·4 | ·50 |
| 14 | 19 23 13·60 | 18 42 30·8 | ·8242541 | 23 39·0 | 123 43 33·8 | 6 49 57·7 | ·51 |
| 15 | 19 18 3·04 | 18 47 32·5 | ·8266645 | 23 30·3 | 129 19 7·1 | 6 56 59·2 | ·51 |
| 16 | 19 13 17·42 | 18 53 41·4 | ·8306432 | 23 22·2 | 134 45 22·1 | 7 0 2·9 | ·52 |
| 17 | 19 9 2·78 | 19 0 46·6 | ·8359956 | 23 14·6 | 140 2 3·3 | 6 59 26·3 | ·53 |
| 18 | 19 5 23·49 | 19 8 37·7 | ·8425112 | 23 7·7 | 145 9 4·8 | 6 55 29·1 | ·53 |
| 19 | 19 2 22·18 | 19 17 5·1 | ·8499759 | 23 1·4 | 150 6 28·1 | 6 48 31·5 | ·54 |
| 20 | 19 0 0·10 | 19 25 59·9 | ·8581856 | 22 55·7 | 154 54 22·0 | 6 38 54·0 | ·55 |
| 21 | 18 58 17·26 | 19 35 13·2 | ·8669520 | 22 50·7 | 159 33 0·4 | 6 26 56·2 | ·56 |
| 22 | 18 57 12·77 | 19 44 36·7 | ·8761110 | 22 46·3 | 164 2 41·8 | 6 12 56·7 | ·56 |
| 23 | 18 56 45·10 | 19 54 2·4 | ·8855184 | 22 42·4 | 168 23 47·4 | 5 57 13·2 | ·57 |
| 24 | 18 56 52·23 | 20 3 22·8 | ·8950543 | 22 39·1 | 172 36 40·7 | 5 40 1·2 | ·58 |
| 25 | 18 57 31·99 | 20 12 30·7 | ·9046211 | 22 36·3 | 176 41 46·8 | 5 21 35·2 | ·58 |
| 26 | 18 58 42·00 | 20 21 19·2 | ·9141394 | 22 34·0 | 180 39 31·3 | 5 2 8·1 | ·59 |
| 27 | 19 0 19·94 | 20 29 42·0 | ·9235472 | 22 32·1 | 184 30 20·1 | 4 41 51·3 | ·59 |
| 28 | 19 2 23·53 | 20 37 33·3 | ·9327959 | 22 30·6 | 188 14 38·7 | 4 20 54·8 | ·60 |
| 29 | 19 4 50·58 | 20 44 47·9 | ·9418494 | 22 29·4 | 191 52 52·8 | 3 59 27·4 | ·61 |
| 30 | 19 7 39·04 | 20 51 21·0 | ·9506815 | 22 28·6 | 195 25 27·0 | 3 37 36·8 | ·61 |
| 31 | 19 10 46·98 | 20 57 7·9 | ·9592737 | 22 28·1 | 198 52 45·2 | 3 15 29·8 | ·62 |
| 32 | 19 14 12·70 | S. 21 2 5·2 | 9·9676133 | 22 27·8 | 202 15 9·9 | N. 2 53 11·8 | 9·62 |

# JANUARY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 20 5 4 ·05 | + 3 ·03 | 0 ·27 | S. 20 27 22 ·3 | +50 ·3 | 3 ·8 | 10 ·1 |
| 20 5 54 ·88 | + 1 ·19 | 0 ·27 | 20 7 48 ·7 | 47 ·4 | 3 ·9 | 10 ·4 |
| 20 6 0 ·25 | — 0 ·76 | 0 ·28 | 19 49 34 ·2 | 43 ·7 | 4 ·0 | 10 ·7 |
| 20 5 17 ·99 | 2 ·77 | 0 ·30 | 19 32 57 ·2 | 39 ·3 | 4 ·2 | 11 ·0 |
| 20 3 47 ·01 | 4 ·81 | 0 ·30 | 19 18 12 ·8 | 34 ·3 | 4 ·3 | 11 ·3 |
| 20 1 27 ·48 | 6 ·81 | 0 ·31 | 19 5 33 ·7 | 28 ·9 | 4 ·4 | 11 ·6 |
| 19 58 21 ·16 | 8 ·69 | 0 ·32 | 18 55 8 ·6 | 23 ·2 | 4 ·5 | 11 ·9 |
| 19 54 31 ·65 | 10 ·39 | 0 ·33 | 18 47 2 ·1 | 17 ·4 | 4 ·6 | 12 ·2 |
| 19 50 4 ·38 | 11 ·83 | 0 ·33 | 18 41 13 ·7 | 11 ·7 | 4 ·7 | 12 ·4 |
| 19 45 6 ·62 | 12 ·93 | 0 ·34 | 18 37 39 ·4 | 6 ·2 | 4 ·8 | 12 ·6 |
| 19 39 47 ·07 | 13 ·63 | 0 ·34 | 18 36 11 ·0 | + 1 ·2 | 4 ·8 | 12 ·8 |
| {19 34 15 ·49 / 19 29 41 ·95} | {13 ·93 / 13 ·89} | {0 ·34 / 0 ·34} | {18 36 37 ·9 / 18 39 47 ·9} | —{3 ·4 / 7 ·4} | {4 ·8 / 4 ·9} | {12 ·8 / 12 ·9} |
| 19 23 16 ·26 | 13 ·28 | 0 ·34 | 18 42 28 ·7 | 10 ·9 | 4 ·9 | 12 ·9 |
| 19 18 7 ·42 | 12 ·41 | 0 ·34 | 18 47 27 ·6 | 13 ·9 | 4 ·8 | 12 ·8 |
| 19 13 23 ·01 | 11 ·25 | 0 ·34 | 18 53 33 ·2 | 16 ·5 | 4 ·8 | 12 ·7 |
| 19 9 9 ·03 | 9 ·88 | 0 ·33 | 19 0 34 ·7 | 18 ·6 | 4 ·7 | 12 ·5 |
| 19 5 29 ·84 | 8 ·37 | 0 ·33 | 19 8 22 ·3 | 20 ·3 | 4 ·6 | 12 ·3 |
| 19 2 28 ·10 | 6 ·77 | 0 ·33 | 19 16 46 ·2 | 21 ·6 | 4 ·6 | 12 ·1 |
| 19 0 $\overline{7}$5 ·13 | 5 ·15 | 0 ·32 | 19 25 37 ·6 | 22 ·6 | 4 ·5 | 11 ·9 |
| 18 58 21 ·02 | 3 ·54 | 0 ·31 | 19 34 48 ·2 | 23 ·2 | 4 ·4 | 11 ·7 |
| 18 57 15 ·01 | 2 ·00 | 0 ·30 | 19 44 9 ·5 | 23 ·5 | 4 ·3 | 11 ·4 |
| 18 56 45 ·65 | — 0 ·49 | 0 ·30 | 19 53 33 ·5 | 23 ·5 | 4 ·2 | 11 ·2 |
| 18 56 50 ·99 | + 0 ·92 | 0 ·29 | 20 2 52 ·8 | 23 ·1 | 4 ·1 | 10 ·9 |
| 18 57 28 ·94 | 2 ·23 | 0 ·28 | 20 12 0 ·3 | 22 ·5 | 4 ·0 | 10 ·7 |
| 18 58 37 ·15 | 3 ·44 | 0 ·27 | 20 20 49 ·1 | 21 ·6 | 3 ·9 | 10 ·4 |
| 19 0 13 ·34 | 4 ·56 | 0 ·27 | 20 29 12 ·8 | 20 ·4 | 3 ·9 | 10 ·2 |
| 19 2 15 ·27 | 5 ·59 | 0 ·27 | 20 37 5 ·5 | 19 ·0 | 3 ·8 | 10 ·0 |
| 19 4 40 ·81 | 6 ·53 | 0 ·26 | 20 44 22 ·0 | 17 ·4 | 3 ·7 | 9 ·8 |
| 19 7 27 ·84 | 7 ·38 | 0 ·26 | 20 50 57 ·6 | 15 ·6 | 3 ·6 | 9 ·6 |
| 19 10 34 ·49 | 8 ·16 | 0 ·25 | 20 56 47 ·3 | 13 ·6 | 3 ·5 | 9 ·4 |
| 19 13 59 ·05 | 8 ·87 | 0 ·25 | 21 1 47 ·8 | 11 ·4 | 3 ·5 | 9 ·2 |
| 19 17 39 ·87 | + 9 ·52 | 0 ·25 | S. 21 5 55 ·1 | — 9 ·2 | 3 ·4 | 9 ·1 |

# FEBRUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noo* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 19 14 12·70 | S. 21 2 5·2 | 9·9676133 | 22 27·8 | 202 15 9·9 | N. 2 53 11·8 | 9·6265 |
| 2 | 19 17 54·54 | 21 6 9·0 | ·9756935 | 22 27·8 | 205 33 3·9 | 2 30 48·1 | ·6311 |
| 3 | 19 21 51·06 | 21 9 16·3 | ·9835110 | 22 28·0 | 208 46 47·8 | 2 8 22·9 | ·6354 |
| 4 | 19 26 0·93 | 21 11 24·2 | ·9910651 | 22 28·4 | 211 56 42·0 | 1 45 59·8 | ·6395 |
| 5 | 19 30 22·95 | 21 12 30·3 | 9·9983590 | 22 29·0 | 215 3 6·3 | 1 23 42·1 | ·6434 |
| 6 | 19 34 56·00 | 21 12 32·4 | 0·0053953 | 22 29·8 | 218 6 18·1 | 1 1 32·6 | ·6469 |
| 7 | 19 39 39·12 | 21 11 28·6 | ·0121795 | 22 30·7 | 221 6 35·6 | 0 39 33·6 | ·6502 |
| 8 | 19 44 31·40 | 21 9 16·8 | ·0187179 | 22 31·7 | 224 4 15·5 | N. 0 17 47·4 | ·6533 |
| 9 | 19 49 32·03 | 21 5 55·9 | ·0250170 | 22 32·9 | 226 59 34·0 | S. 0 3 44·5 | ·6560 |
| 10 | 19 54 40·31 | 21 1 24·4 | ·0310836 | 22 34·2 | 229 52 46·5 | 0 25 0·4 | ·6585 |
| 11 | 19 59 55·53 | 20 55 41·0 | ·0369252 | 22 35·6 | 232 44 7·9 | 0 45 58·8 | ·6607 |
| 12 | 20 5 17·11 | 20 48 45·0 | ·0425489 | 22 37·1 | 235 33 53·0 | 1 6 38·4 | ·6626 |
| 13 | 20 10 44·52 | 20 40 35·1 | ·0479616 | 22 38·7 | 238 22 14·8 | 1 26 58·0 | ·6643 |
| 14 | 20 16 17·28 | 20 31 10·7 | ·0531712 | 22 40·4 | 241 9 27·6 | 1 46 56·6 | ·6658 |
| 15 | 20 21 54·93 | 20 20 30·8 | ·0581834 | 22 42·2 | 243 55 44·0 | 2 6 32·9 | ·6669 |
| 16 | 20 27 37·09 | 20 8 35·3 | ·0630051 | 22 44·0 | 246 41 16·9 | 2 25 46·0 | ·6678 |
| 17 | 20 33 23·41 | 19 55 23·2 | ·0676428 | 22 45·9 | 249 26 19·6 | 2 44 34·8 | ·6685 |
| 18 | 20 39 13·54 | 19 40 54·2 | ·0721019 | 22 47·9 | 252 11 3·7 | 3 2 58·4 | ·6689 |
| 19 | 20 45 7·21 | 19 25 7·9 | ·0763879 | 22 49·9 | 254 55 41·7 | 3 20 55·6 | ·6690 |
| 20 | 20 51 4·15 | 19 8 4·0 | ·0805059 | 22 51·9 | 257 40 25·9 | 3 38 25·1 | ·6688 |
| 21 | 20 57 4·15 | 18 49 42·1 | ·0844602 | 22 54·0 | 260 25 28·7 | 3 55 25·9 | ·6683 |
| 22 | 21 3 6·99 | 18 30 2·3 | ·0882558 | 22 56·2 | 263 11 2·1 | 4 11 56·6 | ·6678 |
| 23 | 21 9 12·48 | 18 9 4·0 | ·0918954 | 22 58·4 | 265 57 18·4 | 4 27 55·6 | ·6669 |
| 24 | 21 15 20·47 | 17 46 47·2 | ·0953829 | 23 0·5 | 268 44 30·1 | 4 43 21·7 | ·6657 |
| 25 | 21 21 30·85 | 17 23 11·8 | ·0987209 | 23 2·9 | 271 32 50·2 | 4 58 12·9 | ·6643 |
| 26 | 21 27 43·46 | 16 58 17·7 | ·1019121 | 23 5·2 | 274 22 30·8 | 5 12 27·2 | ·6626 |
| 27 | 21 33 58·21 | 16 32 4·9 | ·1049578 | 23 7·5 | 277 13 45·3 | 5 26 2·9 | ·6606 |
| 28 | 21 40 15·05 | 16 4 33·4 | ·1078594 | 23 9·9 | 280 6 47·4 | 5 38 57·6 | ·6584 |
| 29 | 21 46 33·89 | S. 15 35 43·2 | 0·1106180 | 23 12·3 | 283 1 50·7 | S. 5 51 8·6 | 9·6559 |

# FEBRUARY, 1845.

At Transit over the Meridian of Greenwich.

| ...ent ...ght ...sion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 39 ·87 | + 9 ·52 | 0 ·25 | S. 21 5 55 ·1 | − 9 ·2 | 3 ·4 | 9 ·1 |
| 35 ·49 | 10 ·11 | 0 ·25 | 21 9 6 ·0 | 6 ·7 | 3 ·4 | 8 ·9 |
| 44 ·57 | 10 ·64 | 0 ·24 | 21 11 17 ·8 | 4 ·2 | 3 ·3 | 8 ·8 |
| 5 ·92 | 11 ·13 | 0 ·23 | 21 12 28 ·0 | − 1 ·6 | 3 ·2 | 8 ·6 |
| 38 ·42 | 11 ·57 | 0 ·23 | 21 12 34 ·2 | + 1 ·1 | 3 ·2 | 8 ·5 |
| 21 ·10 | 11 ·98 | 0 ·22 | 21 11 34 ·6 | 3 ·9 | 3 ·1 | 8 ·3 |
| 13 ·02 | 12 ·34 | 0 ·22 | 21 9 27 ·0 | 6 ·8 | 3 ·1 | 8 ·2 |
| 13 ·37 | 12 ·68 | 0 ·22 | 21 6 10 ·2 | 9 ·7 | 3 ·1 | 8 ·1 |
| 21 ·47 | 12 ·99 | 0 ·22 | 21 1 42 ·8 | 12 ·6 | 3 ·0 | 8 ·0 |
| 36 ·57 | 13 ·27 | 0 ·22 | 20 56 3 ·5 | 15 ·6 | 3 ·0 | 7 ·9 |
| 58 ·10 | 13 ·52 | 0 ·21 | 20 49 11 ·4 | 18 ·7 | 2 ·9 | 7 ·8 |
| 25 ·52 | 13 ·76 | 0 ·21 | 20 41 5 ·3 | 21 ·8 | 2 ·9 | 7 ·7 |
| 58 ·36 | 13 ·97 | 0 ·21 | 20 31 44 ·6 | 24 ·9 | 2 ·9 | 7 ·6 |
| 36 ·15 | 14 ·17 | 0 ·20 | 20 21 8 ·2 | 28 ·1 | 2 ·8 | 7 ·5 |
| 18 ·50 | 14 ·35 | 0 ·20 | 20 9 16 ·0 | 31 ·3 | 2 ·8 | 7 ·4 |
| 5 ·03 | 14 ·52 | 0 ·20 | 19 56 6 ·9 | 34 ·5 | 2 ·8 | 7 ·3 |
| 55 ·44 | 14 ·68 | 0 ·20 | 19 41 40 ·7 | 37 ·7 | 2 ·8 | 7 ·3 |
| 49 ·41 | 14 ·82 | 0 ·19 | 19 25 57 ·1 | 40 ·9 | 2 ·7 | 7 ·2 |
| 46 ·69 | 14 ·95 | 0 ·19 | 19 8 55 ·7 | 44 ·2 | 2 ·7 | 7 ·1 |
| 47 ·06 | 15 ·08 | 0 ·19 | 18 50 35 ·9 | 47 ·4 | 2 ·7 | 7 ·1 |
| 50 ·30 | 15 ·19 | 0 ·19 | 18 30 58 ·1 | 50 ·7 | 2 ·6 | 7 ·0 |
| 56 ·23 | 15 ·30 | 0 ·19 | 18 10 1 ·4 | 54 ·0 | 2 ·6 | 6 ·9 |
| 4 ·67 | 15 ·40 | 0 ·19 | 17 47 46 ·0 | 57 ·3 | 2 ·6 | 6 ·9 |
| 15 ·51 | 15 ·50 | 0 ·18 | 17 24 11 ·9 | 60 ·6 | 2 ·6 | 6 ·8 |
| 28 ·63 | 15 ·59 | 0 ·18 | 16 59 18 ·5 | 63 ·9 | 2 ·6 | 6 ·8 |
| 43 ·91 | 15 ·68 | 0 ·18 | 16 33 6 ·3 | 67 ·2 | 2 ·5 | 6 ·7 |
| 1 ·28 | 15 ·77 | 0 ·18 | 16 5 35 ·0 | 70 ·5 | 2 ·5 | 6 ·7 |
| 20 ·68 | 15 ·85 | 0 ·18 | 15 36 44 ·7 | 73 ·7 | 2 ·5 | 6 ·6 |
| 42 ·04 | +15 ·93 | 0 ·17 | S. 15 6 35 ·5 | +77 ·0 | 2 ·5 | 6 ·6 |

# MARCH, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 46 33·89 | S. 15 35 43·2 | 0·1106180 | 23 12·3 | 283 1 50·7 | S. 5 51 8·6 | 9·655 |
| 2 | 21 52 54·68 | 15 5 34·4 | ·1132339 | 23 14·7 | 285 59 9·5 | 6 2 33·3 | ·653 |
| 3 | 21 59 17·42 | 14 34 7·0 | ·1157072 | 23 17·2 | 288 58 59·0 | 6 13 8·5 | ·650 |
| 4 | 22 5 42·05 | 14 1 21·3 | ·1180362 | 23 19·7 | 292 1 33·6 | 6 22 50·9 | ·646 |
| 5 | 22 12 8·60 | 13 27 17·4 | ·1202198 | 23 22·3 | 295 7 9·7 | 6 31 36·8 | ·643 |
| 6 | 22 18 37·05 | 12 51 55·5 | ·1222562 | 23 24·8 | 298 16 3·6 | 6 39 22·0 | ·639 |
| 7 | 22 25 7·45 | 12 15 16·0 | ·1241420 | 23 27·4 | 301 28 32·3 | 6 46 2·1 | ·635 |
| 8 | 22 31 39·83 | 11 37 18·9 | ·1258740 | 23 30·0 | 304 44 53·9 | 6 51 32·1 | ·630 |
| 9 | 22 38 14·24 | 10 58 5·0 | ·1274479 | 23 32·7 | 308 5 26·6 | 6 55 46·7 | ·626 |
| 10 | 22 44 50·72 | 10 17 34·5 | ·1288580 | 23 35·4 | 311 30 29·8 | 6 58 40·1 | ·621 |
| 11 | 22 51 29·35 | 9 35 48·2 | ·1300984 | 23 38·2 | 315 0 23·2 | 7 0 5·9 | ·616 |
| 12 | 22 58 10·22 | 8 52 46·6 | ·1311619 | 23 41·0 | 318 35 27·5 | 6 59 57·4 | ·610 |
| 13 | 23 4 53·38 | 8 8 30·7 | ·1320402 | 23 43·9 | 322 16 3·8 | 6 58 7·2 | ·605 |
| 14 | 23 11 38·92 | 7 23 1·4 | ·1327240 | 23 46·6 | 326 2 34·0 | 6 54 27·7 | ·599 |
| 15 | 23 18 26·93 | 6 36 20·0 | ·1332026 | 23 49·5 | 329 55 20·3 | 6 48 50·7 | ·593 |
| 16 | 23 25 17·49 | 5 48 28·0 | ·1334641 | 23 52·5 | 333 54 45·2 | 6 41 7·7 | ·586 |
| 17 | 23 32 10·65 | 4 59 27·2 | ·1334952 | 23 55·5 | 338 1 11·1 | 6 31 10·0 | ·580 |
| 18 | 23 39 6·52 | 4 9 19·6 | ·1332815 | 23 58·5 | 342 15 0·4 | 6 18 49·0 | ·573 |
| 19 | 23 46 5·12 | 3 18 7·9 | ·1328063 | * * | 346 36 34·6 | 6 3 56·2 | ·566 |
| 20 | 23 53 6·47 | 2 25 54·8 | ·1320527 | 0 1·6 | 351 6 14·7 | 5 46 23·5 | ·560 |
| 21 | 0 0 10·56 | 1 32 44·3 | ·1310010 | 0 4·7 | 355 44 19·0 | 5 26 3·9 | ·553 |
| 22 | 0 7 17·36 | S. 0 38 40·3 | ·1296313 | 0 7·9 | 0 31 4·4 | 5 2 51·5 | ·546 |
| 23 | 0 14 26·76 | N. 0 16 12·1 | ·1279216 | 0 11·1 | 5 26 43·7 | 4 36 42·4 | ·539 |
| 24 | 0 21 38·62 | 1 11 47·3 | ·1258492 | 0 14·4 | 10 31 26·9 | 4 7 35·4 | ·532 |
| 25 | 0 28 52·72 | 2 7 58·5 | ·1233907 | 0 17·7 | 15 45 17·9 | 3 35 32·3 | ·525 |
| 26 | 0 36 8·75 | 3 4 38·3 | ·1205223 | 0 21·0 | 21 8 14·3 | 3 0 39·0 | ·519 |
| 27 | 0 43 26·32 | 4 1 38·1 | ·1172199 | 0 24·4 | 26 40 7·2 | 2 23 6·1 | ·513 |
| 28 | 0 50 44·93 | 4 58 48·2 | ·1134608 | 0 27·8 | 32 20 38·0 | 1 43 9·6 | ·508 |
| 29 | 0 58 3·98 | 5 55 58·1 | ·1092236 | 0 31·2 | 38 9 20·2 | 1 1 11·0 | ·502 |
| 30 | 1 5 22·75 | 6 52 56·4 | ·1044878 | 0 34·5 | 44 5 36·2 | S. 0 17 37·9 | ·498 |
| 31 | 1 12 40·43 | 7 49 30·3 | ·0992370 | 0 37·9 | 50 8 38·3 | N. 0 26 56·7 | ·494 |
| 32 | 1 19 56·03 | N. 8 45 26·9 | 0·0934586 | 0 41·2 | 56 17 27·5 | N. 1 11 54·7 | 9·491 |

# MARCH, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 21 52 42 ·04 | +15 ·93 | 0 ·17 | S. 15 6 35 ·5 | + 77 ·0 | 2 ·5 | 6 ·6 |
| 21 59 5 ·36 | 16 ·01 | 0 ·17 | 14 35 7 ·5 | 80 ·3 | 2 ·5 | 6 ·6 |
| 22 5 30 ·59 | 16 ·09 | 0 ·17 | 14 2 20 ·8 | 83 ·6 | 2 ·5 | 6 ·5 |
| 22 11 57 ·76 | 16 ·17 | 0 ·17 | 13 28 15 ·7 | 86 ·9 | 2 ·5 | 6 ·5 |
| 22 18 26 ·83 | 16 ·25 | 0 ·17 | 12 52 52 ·1 | 90 ·1 | 2 ·5 | 6 ·5 |
| 22 24 57 ·88 | 16 ·34 | 0 ·16 | 12 16 10 ·7 | 93 ·4 | 2 ·4 | 6 ·4 |
| 22 31 30 ·93 | 16 ·42 | 0 ·16 | 11 38 11 ·2 | 96 ·6 | 2 ·4 | 6 ·4 |
| 22 38 6 ·02 | 16 ·51 | 0 ·16 | 10 58 54 ·8 | 99 ·8 | 2 ·4 | 6 ·4 |
| 22 44 43 ·19 | 16 ·59 | 0 ·16 | 10 18 21 ·3 | 103 ·0 | 2 ·4 | 6 ·4 |
| 22 51 22 ·53 | 16 ·69 | 0 ·16 | 9 36 31 ·6 | 106 ·2 | 2 ·4 | 6 ·4 |
| 22 58 4 ·13 | 16 ·78 | 0 ·16 | 8 53 26 ·3 | 109 ·3 | 2 ·4 | 6 ·4 |
| 23 4 48 ·04 | 16 ·88 | 0 ·16 | 8 9 6 ·3 | 112 ·4 | 2 ·4 | 6 ·3 |
| 23 11 34 ·34 | 16 ·98 | 0 ·16 | 7 23 32 ·6 | 115 ·4 | 2 ·4 | 6 ·3 |
| 23 18 23 ·13 | 17 ·09 | 0 ·16 | 6 36 46 ·3 | 118 ·4 | 2 ·4 | 6 ·3 |
| 23 25 14 ·49 | 17 ·19 | 0 ·16 | 5 48 49 ·1 | 121 ·3 | 2 ·4 | 6 ·3 |
| 23 32 8 ·49 | 17 ·31 | 0 ·16 | 4 59 42 ·7 | 124 ·2 | 2 ·4 | 6 ·3 |
| 23 39 5 ·22 | 17 ·42 | 0 ·16 | 4 9 29 ·1 | 126 ·9 | 2 ·4 | 6 ·3 |
| 23 46 4 ·69 | 17 ·54 | 0 ·16 | 3 18 11 ·1 | 129 ·6 | 2 ·4 | 6 ·3 |
| * * * | * | * | * * * | * | * | * |
| 23 53 6 ·94 | 17 ·65 | 0 ·16 | 2 25 51 ·3 | 132 ·1 | 2 ·4 | 6 ·3 |
| 0 0 11 ·97 | 17 ·77 | 0 ·16 | 1 32 33 ·6 | 134 ·4 | 2 ·4 | 6 ·3 |
| 0 7 19 ·71 | 17 ·88 | 0 ·16 | S. 0 38 22 ·2 | 136 ·5 | 2 ·4 | 6 ·4 |
| 0 14 30 ·09 | 17 ·99 | 0 ·16 | N. 0 16 37 ·8 | 138 ·4 | 2 ·4 | 6 ·4 |
| 0 21 42 ·96 | 18 ·08 | 0 ·16 | 1 12 21 ·0 | 140 ·1 | 2 ·4 | 6 ·4 |
| 0 28 58 ·07 | 18 ·17 | 0 ·17 | 2 8 40 ·2 | 141 ·5 | 2 ·5 | 6 ·5 |
| 0 36 15 ·15 | 18 ·25 | 0 ·17 | 3 5 28 ·2 | 142 ·5 | 2 ·5 | 6 ·5 |
| 0 43 33 ·75 | 18 ·30 | 0 ·17 | 4 2 36 ·1 | 143 ·1 | 2 ·5 | 6 ·5 |
| 0 50 53 ·40 | 18 ·33 | 0 ·17 | 4 59 54 ·5 | 143 ·3 | 2 ·5 | 6 ·6 |
| 0 58 13 ·47 | 18 ·34 | 0 ·17 | 5 57 12 ·4 | 143 ·1 | 2 ·5 | 6 ·7 |
| 1 5 33 ·26 | 18 ·31 | 0 ·17 | 6 54 18 ·1 | 142 ·3 | 2 ·5 | 6 ·7 |
| 1 12 51 ·91 | 18 ·24 | 0 ·18 | 7 50 59 ·1 | 141 ·0 | 2 ·6 | 6 ·8 |
| 1 20 8 ·45 | +18 ·13 | 0 ·18 | N. 8 47 2 ·3 | +139 ·2 | 2 ·6 | 6 ·9 |

# APRIL, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 1 19 56·03 | N. 8 45 26·9 | 0·0934586 | 0 41·2 | 56 17 27·5 | N.1 11 54·7 | 9·49 |
| 2 | 1 27 8·55 | 9 40 32·9 | ·0871441 | 0 44·5 | 62 30 55·3 | 1 56 34·5 | ·48 |
| 3 | 1 34 16·81 | 10 34 34·5 | ·0802899 | 0 47·7 | 68 47 44·6 | 2 40 12·6 | ·48 |
| 4 | 1 41 19·62 | 11 27 17·7 | ·0728991 | 0 50·8 | 75 6 30·6 | 3 22 5·0 | ·48 |
| 5 | 1 48 15·70 | 12 18 29·6 | ·0649785 | 0 53·8 | 81 25 44·1 | 4 1 30·1 | ·48 |
| 6 | 1 55 3·77 | 13 7 57·5 | ·0565425 | 0 56·6 | 87 43 54·4 | 4 37 50·4 | ·48 |
| 7 | 2 1 42·54 | 13 55 29·7 | ·0476094 | 0 59·4 | 93 59 33·3 | 5 10 34·1 | ·49 |
| 8 | 2 8 10·69 | 14 40 55·7 | ·0382034 | 1 1·9 | 100 11 12·9 | 5 39 16·6 | ·49 |
| 9 | 2 14 27·01 | 15 24 6·2 | ·0283535 | 1 4·2 | 106 17 34·6 | 6 3 41·0 | ·49 |
| 10 | 2 20 30·27 | 16 4 53·1 | ·0180913 | 1 6·3 | 112 17 28·5 | 6 23 38·5 | ·50 |
| 11 | 2 26 19·35 | 16 43 10·0 | 0·0074527 | 1 8·2 | 118 9 54·3 | 6 39 7·9 | ·50 |
| 12 | 2 31 53·21 | 17 18 51·4 | 9·9964750 | 1 9·8 | 123 54 3·6 | 6 50 14·2 | ·5 |
| 13 | 2 37 10·75 | 17 51 52·9 | ·9851972 | 1 11·1 | 129 29 20·2 | 6 57 8·3 | ·5 |
| 14 | 2 42 11·15 | 18 22 11·5 | ·9736607 | 1 12·2 | 134 55 17·7 | 7 0 4·9 | ·5 |
| 15 | 2 46 53·52 | 18 49 44·9 | ·9619066 | 1 12·9 | 140 11 41·2 | 6 59 22·0 | ·5 |
| 16 | 2 51 17·08 | 19 14 31·5 | ·9499784 | 1 13·3 | 145 18 24·7 | 6 55 19·0 | ·5 |
| 17 | 2 55 21·09 | 19 36 30·0 | ·9379198 | 1 13·4 | 150 15 30·2 | 6 48 16·3 | ·5 |
| 18 | 2 59 4·94 | 19 55 40·1 | ·9257753 | 1 13·2 | 155 3 6·4 | 6 38 34·2 | ·5 |
| 19 | 3 2 28·03 | 20 12 1·5 | ·9135898 | 1 12·6 | 159 41 28·2 | 6 26 32·4 | ·5 |
| 20 | 3 5 29·87 | 20 25 34·1 | ·9014113 | 1 11·7 | 164 10 53·3 | 6 12 29·6 | ·56 |
| 21 | 3 8 10·05 | 20 36 18·3 | ·8892881 | 1 10·4 | 168 31 43·3 | 5 56 43·0 | ·57 |
| 22 | 3 10 28·26 | 20 44 14·3 | ·8772702 | 1 8·8 | 172 44 22·1 | 5 39 28·6 | ·58 |
| 23 | 3 12 24·29 | 20 49 22·9 | ·8654103 | 1 6·7 | 176 49 14·1 | 5 21 0·5 | ·58 |
| 24 | 3 13 58·02 | 20 51 44·7 | ·8537623 | 1 4·4 | 180 46 45·6 | 5 1 31·6 | ·59 |
| 25 | 3 15 9·53 | 20 51 21·3 | ·8423829 | 1 1·6 | 184 37 22·0 | 4 41 13·6 | ·59 |
| 26 | 3 15 59·05 | 20 48 14·1 | ·8313308 | 0 58·5 | 188 21 29·4 | 4 20 16·0 | ·60 |
| 27 | 3 16 26·93 | 20 42 25·8 | ·8206665 | 0 55·0 | 191 59 32·8 | 3 58 47·9 | ·61 |
| 28 | 3 16 33·77 | 20 33 59·3 | ·8104510 | 0 51·2 | 195 31 57·0 | 3 36 56·7 | ·61 |
| 29 | 3 16 20·38 | 20 22 59·0 | ·8007477 | 0 47·0 | 198 59 5·8 | 3 14 49·2 | ·62 |
| 30 | 3 15 47·77 | 20 9 30·6 | ·7916193 | 0 42·5 | 202 21 22·2 | 2 52 31·0 | ·62 |
| 31 | 3 14 57·17 | N.19 53 40·8 | 9·7831268 | 0 37·7 | 205 39 8·6 | N.2 30 7·1 | 9·63 |

# APRIL, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 20 8 ·45 | +18 ·13 | 0 ·18 | N. 8 47 2 ·3 | +139 ·2 | 2 ·6 | 6 ·9 |
| 27 21 ·85 | 17 ·98 | 0 ·18 | 9 42 14 ·1 | 136 ·7 | 2 ·6 | 7 ·0 |
| 34 30 ·90 | 17 ·77 | 0 ·18 | 10 36 20 ·6 | 133 ·7 | 2 ·7 | 7 ·1 |
| 41 34 ·42 | 17 ·51 | 0 ·19 | 11 29 7 ·7 | 130 ·1 | 2 ·8 | 7 ·3 |
| 48 31 ·10 | 17 ·20 | 0 ·19 | 12 20 22 ·5 | 126 ·0 | 2 ·8 | 7 ·4 |
| 55 19 ·65 | 16 ·84 | 0 ·20 | 13 9 52 ·0 | 121 ·4 | 2 ·8 | 7 ·5 |
| 1 58 ·76 | 16 ·41 | 0 ·20 | 13 57 24 ·7 | 116 ·3 | 2 ·9 | 7 ·7 |
| 8 27 ·11 | 15 ·94 | 0 ·21 | 14 42 49 ·9 | 110 ·8 | 3 ·0 | 7 ·9 |
| 14 43 ·48 | 15 ·41 | 0 ·21 | 15 25 58 ·4 | 104 ·9 | 3 ·0 | 8 ·0 |
| 20 46 ·64 | 14 ·84 | 0 ·22 | 16 6 42 ·1 | 98 ·7 | 3 ·1 | 8 ·2 |
| 26 35 ·49 | 14 ·22 | 0 ·23 | 16 44 54 ·9 | 92 ·3 | 3 ·2 | 8 ·4 |
| 32 8 ·96 | 13 ·56 | 0 ·23 | 17 20 31 ·1 | 85 ·7 | 3 ·2 | 8 ·6 |
| 37 26 ·00 | 12 ·86 | 0 ·24 | 17 53 26 ·6 | 78 ·9 | 3 ·4 | 8 ·9 |
| 42 25 ·74 | 12 ·12 | 0 ·24 | 18 23 38 ·4 | 72 ·0 | 3 ·4 | 9 ·1 |
| 47 7 ·33 | 11 ·34 | 0 ·25 | 18 51 4 ·2 | 65 ·1 | 3 ·5 | 9 ·4 |
| 51 29 ·99 | 10 ·54 | 0 ·26 | 19 15 42 ·7 | 58 ·1 | 3 ·6 | 9 ·6 |
| 55 33 ·00 | 9 ·71 | 0 ·26 | 19 37 32 ·7 | 51 ·1 | 3 ·7 | 9 ·9 |
| 59 15 ·78 | 8 ·85 | 0 ·27 | 19 56 34 ·0 | 44 ·0 | 3 ·9 | 10 ·2 |
| 2 37 ·71 | 7 ·97 | 0 ·28 | 20 12 46 ·5 | 37 ·0 | 4 ·0 | 10 ·5 |
| 5 38 ·37 | 7 ·08 | 0 ·29 | 20 26 10 ·2 | 30 ·0 | 4 ·1 | 10 ·8 |
| 8 17 ·32 | 6 ·17 | 0 ·30 | 20 36 45 ·6 | 23 ·0 | 4 ·2 | 11 ·1 |
| 10 34 ·30 | 5 ·25 | 0 ·31 | 20 44 32 ·9 | 16 ·0 | 4 ·3 | 11 ·4 |
| 12 29 ·11 | 4 ·32 | 0 ·31 | 20 49 33 ·2 | 9 ·0 | 4 ·4 | 11 ·7 |
| 14 1 ·69 | 3 ·39 | 0 ·32 | 20 51 47 ·2 | + 2 ·1 | 4 ·5 | 12 ·0 |
| 15 12 ·10 | 2 ·48 | 0 ·33 | 20 51 16 ·6 | — 4 ·7 | 4 ·6 | 12 ·3 |
| 16 0 ·60 | 1 ·57 | 0 ·35 | 20 48 3 ·2 | 11 ·4 | 4 ·8 | 12 ·7 |
| 16 27 ·57 | + 0 ·68 | 0 ·35 | 20 42 9 ·5 | 18 ·0 | 4 ·9 | 13 ·0 |
| 16 33 ·63 | — 0 ·17 | 0 ·36 | 20 33 38 ·5 | 24 ·5 | 5 ·0 | 13 ·3 |
| 16 19 ·62 | 0 ·99 | 0 ·36 | 20 22 34 ·9 | 30 ·8 | 5 ·1 | 13 ·6 |
| 15 46 ·52 | 1 ·76 | 0 ·37 | 20 9 4 ·6 | 36 ·7 | 5 ·2 | 13 ·9 |
| 14 55 ·60 | — 2 ·47 | 0 ·38 | N.19 53 14 ·0 | — 42 ·4 | 5 ·4 | 14 ·2 |

# MAY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | No |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 3 14 57·17 | N.19 53 40·8 | 9·7831268 | 0 37·7 | 205 39 8·6 | N.2 30 7·1 | 9·631 |
| 2 | 3 13 50·05 | 19 35 38·5 | ·7753314 | 0 32·7 | 208 52 45·4 | 2 7 41·9 | ·635 |
| 3 | 3 12 28·17 | 19 15 34·3 | ·7682879 | 0 27·4 | 212 2 33·1 | 1 45 18·9 | ·639 |
| 4 | 3 10 53·41 | 18 53 40·4 | ·7620488 | 0 21·9 | 215 8 51·0 | 1 23 1·5 | ·643 |
| 5 | 3 9 7·88 | 18 30 11·2 | ·7566592 | 0 16·2 | 218 11 57·3 | 1 0 52·2 | ·647 |
| 6 | 3 7 13·79 | 18 5 22·9 | ·7521566 | 0 10·4 | 221 12 10·0 | 0 38 53·7 | ·650 |
| 7 | 3 5 13·53 | 17 39 32·8 | ·7485699 | {0 4·5 / 23 50·5} | 224 9 45·8 | N.0 17 7·7 | ·653 |
| 8 | 3 3 9·48 | 17 13 0·2 | ·7459182 | 23 52·5 | 227 5 0·4 | S.0 4 23·8 | ·656 |
| 9 | 3 1 4·10 | 16 46 5·1 | ·7442108 | 23 46·5 | 229 58 9·5 | 0 25 39·2 | ·658 |
| 10 | 2 58 59·72 | 16 19 7·6 | ·7434448 | 23 40·5 | 232 49 27·9 | 0 46 37·0 | ·660 |
| 11 | 2 56 58·67 | 15 52 28·1 | ·7436095 | 23 34·7 | 235 39 10·1 | 1 7 16·0 | ·662 |
| 12 | 2 55 3·12 | 15 26 26·5 | ·7446828 | 23 29·0 | 238 27 29·8 | 1 27 35·0 | ·664 |
| 13 | 2 53 15·04 | 15 1 21·7 | ·7466325 | 23 23·4 | 241 14 40·8 | 1 47 32·9 | ·665 |
| 14 | 2 51 36·23 | 14 37 31·0 | ·7494217 | 23 18·0 | 244 0 56·2 | 2 7 8·5 | ·667 |
| 15 | 2 50 8·33 | 14 15 10·4 | ·7530037 | 23 12·8 | 246 46 28·2 | 2 26 20·9 | ·667 |
| 16 | 2 48 52·70 | 13 54 33·6 | ·7573284 | 23 7·8 | 249 31 29·9 | 2 45 9·1 | ·668 |
| 17 | 2 47 50·45 | 13 35 52·2 | ·7623424 | 23 3·1 | 252 16 13·7 | 3 3 31·8 | ·668 |
| 18 | 2 47 2·54 | 13 19 15·9 | ·7679903 | 22 58·6 | 255 0 52·1 | 3 21 28·2 | ·669 |
| 19 | 2 46 29·70 | 13 4 51·9 | ·7742142 | 22 54·4 | 257 45 36·8 | 3 38 56·9 | ·668 |
| 20 | 2 46 12·46 | 12 52 45·6 | ·7809596 | 22 50·4 | 260 30 40·7 | 3 55 56·8 | ·668 |
| 21 | 2 46 11·18 | 12 43 0·4 | ·7881701 | 22 46·7 | 263 16 15·3 | 4 12 26·5 | ·667 |
| 22 | 2 46 26·13 | 12 35 38·3 | ·7957935 | 22 43·3 | 266 2 33·3 | 4 28 24·7 | ·666 |
| 23 | 2 46 57·37 | 12 30 39·3 | ·8037800 | 22 40·2 | 268 49 47·1 | 4 43 49·5 | ·665 |
| 24 | 2 47 44·93 | 12 28 2·3 | ·8120824 | 22 37·3 | 271 38 9·3 | 4 58 39·6 | ·664 |
| 25 | 2 48 48·69 | 12 27 44·8 | ·8206566 | 22 34·7 | 274 27 52·7 | 5 12 53·0 | ·662 |
| 26 | 2 50 8·50 | 12 29 43·6 | ·8294622 | 22 32·3 | 277 19 10·7 | 5 26 27·4 | ·660 |
| 27 | 2 51 44·19 | 12 33 54·9 | ·8384627 | 22 30·2 | 280 12 16·4 | 5 39 20·8 | ·658 |
| 28 | 2 53 35·52 | 12 40 14·2 | ·8476233 | 22 28·3 | 283 7 23·7 | 5 51 30·4 | ·655 |
| 29 | 2 55 42·23 | 12 48 36·1 | ·8569144 | 22 26·8 | 286 4 47·0 | 6 2 53·6 | ·653 |
| 30 | 2 58 4·10 | 12 58 55·3 | ·8663073 | 22 25·4 | 289 4 41·1 | 6 13 27·3 | ·650 |
| 31 | 3 0 40·84 | 13 11 6·3 | ·8757775 | 22 24·3 | 292 7 21·0 | 6 23 8·0 | ·646 |
| 32 | 3 3 32·23 | N.13 25 2·8 | 9·8853025 | 22 23·4 | 295 13 3·0 | S.6 31 52·0 | 9·643 |

# MAY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 3 14 55 ·60 | — 2 ·47 | 0 ·38 | N.19 53 14 ·0 | —42 ·4 | 5 ·4 | 14 ·2 |
| 3 13 48 ·34 | 3 ·12 | 0 ·38 | 19 35 12 ·4 | 47 ·7 | 5 ·4 | 14 ·4 |
| 3 12 26 ·48 | 3 ·69 | 0 ·39 | 19 15 10 ·2 | 52 ·4 | 5 ·5 | 14 ·6 |
| 3 10 51 ·88 | 4 ·18 | 0 ·40 | 18 53 19 ·6 | 56 ·7 | 5 ·6 | 14 ·9 |
| 3 9 6 ·64 | 4 ·58 | 0 ·40 | 18 29 54 ·8 | 60 ·3 | 5 ·7 | 15 ·0 |
| 3 7 12 ·94 | 4 ·88 | 0 ·40 | 18 5 11 ·9 | 63 ·2 | 5 ·7 | 15 ·2 |
| {3 5 19 ·15 / 3 3 9 ·61} | {5 ·09 / 5 ·19} | {0 ·41 / 0 ·41} | {17 39 28 ·0 / 17 13 1 ·9} | {65 ·3 / 66 ·7} | {5 ·8 / 5 ·8} | {15 ·8 / 15 ·4} |
| 3 1 4 ·76 | 5 ·20 | 0 ·41 | 16 46 13 ·6 | 67 ·2 | 5 ·8 | 15 ·4 |
| 2 59 0 ·88 | 5 ·11 | 0 ·40 | 16 19 22 ·8 | 66 ·9 | 5 ·8 | 15 ·5 |
| 2 57 0 ·28 | 4 ·93 | 0 ·40 | 15 52 49 ·5 | 65 ·7 | 5 ·8 | 15 ·5 |
| 2 55 5 ·09 | 4 ·66 | 0 ·40 | 15 26 53 ·5 | 63 ·8 | 5 ·8 | 15 ·5 |
| 2 53 17 ·28 | 4 ·31 | 0 ·40 | 15 1 53 ·4 | 61 ·1 | 5 ·8 | 15 ·4 |
| 2 51 38 ·62 | 3 ·90 | 0 ·40 | 14 38 6 ·4 | 57 ·7 | 5 ·8 | 15 ·3 |
| 2 50 10 ·73 | 3 ·42 | 0 ·39 | 14 15 48 ·2 | 53 ·7 | 5 ·7 | 15 ·2 |
| 2 48 54 ·98 | 2 ·89 | 0 ·39 | 13 55 12 ·5 | 49 ·2 | 5 ·7 | 15 ·0 |
| 2 47 52 ·46 | 2 ·32 | 0 ·39 | 13 36 30 ·8 | 44 ·2 | 5 ·6 | 14 ·8 |
| 2 47 4 ·15 | 1 ·71 | 0 ·38 | 13 19 52 ·9 | 38 ·9 | 5 ·5 | 14 ·6 |
| 2 46 30 ·78 | 1 ·07 | 0 ·38 | 13 5 25 ·9 | 33 ·3 | 5 ·4 | 14 ·4 |
| 2 46 12 ·90 | — 0 ·42 | 0 ·38 | 12 53 15 ·5 | 27 ·5 | 5 ·4 | 14 ·2 |
| 2 46 10 ·87 | + 0 ·25 | 0 ·37 | 12 43 25 ·3 | 21 ·6 | 5 ·3 | 14 ·0 |
| 2 46 24 ·98 | 0 ·93 | 0 ·36 | 12 35 57 ·3 | 15 ·7 | 5 ·2 | 13 ·7 |
| 2 46 55 ·30 | 1 ·60 | 0 ·35 | 12 30 51 ·6 | 9 ·8 | 5 ·1 | 13 ·5 |
| 2 47 41 ·87 | 2 ·28 | 0 ·35 | 12 28 7 ·3 | — 3 ·9 | 5 ·0 | 13 ·2 |
| 2 48 44 ·60 | 2 ·95 | 0 ·34 | 12 27 42 ·1 | + 1 ·8 | 4 ·9 | 13 ·0 |
| 2 50 3 ·33 | 3 ·61 | 0 ·33 | 12 29 32 ·9 | 7 ·4 | 4 ·8 | 12 ·7 |
| 2 51 37 ·91 | 4 ·27 | 0 ·32 | 12 33 35 ·9 | 12 ·8 | 4 ·7 | 12 ·5 |
| 2 53 28 ·12 | 4 ·91 | 0 ·32 | 12 39 46 ·8 | 18 ·1 | 4 ·6 | 12 ·2 |
| 2 55 33 ·70 | 5 ·55 | 0 ·31 | 12 48 0 ·5 | 23 ·1 | 4 ·5 | 11 ·9 |
| 2 57 54 ·46 | 6 ·18 | 0 ·31 | 12 58 11 ·7 | 27 ·8 | 4 ·4 | 11 ·7 |
| 3 0 30 ·10 | 6 ·79 | 0 ·30 | 13 10 15 ·0 | 32 ·4 | 4 ·3 | 11 ·4 |
| 3 3 20 ·39 | 7 ·40 | 0 ·29 | 13 24 4 ·0 | 36 ·7 | 4 ·2 | 11 ·2 |
| 3 6 25 ·15 | + 8 ·00 | 0 ·28 | N.13 39 33 ·3 | +40 ·7 | 4 ·1 | 10 ·9 |

# JUNE, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Lo Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 3 3 32·23 | N.13 25 2·8 | 9·8853025 | 22 23·4 | 295 13 3·0 | S.6 31 52·0 | 9·64 |
| 2 | 3 6 38·06 | 13 40 39·1 | ·8948618 | 22 22·8 | 298 22 3·5 | 6 39 35·3 | ·63 |
| 3 | 3 9 58·12 | 13 57 49·0 | ·9044361 | 22 22·4 | 301 34 39·3 | 6 46 13·3 | ·63 |
| 4 | 3 13 32·27 | 14 16 26·2 | ·9140086 | 22 22·3 | 304 51 8·2 | 6 51 41·1 | ·63 |
| 5 | 3 17 20·35 | 14 36 24·4 | ·9235638 | 22 22·3 | 308 11 48·9 | 6 55 53·3 | ·62 |
| 6 | 3 21 22·25 | 14 57 37·2 | ·9330866 | 22 22·6 | 311 37 0·6 | 6 58 44·1 | ·62 |
| 7 | 3 25 37·92 | 15 19 58·5 | ·9425631 | 22 23·2 | 315 7 3·2 | 7 0 7·1 | ·61 |
| 8 | 3 30 7·29 | 15 43 21·4 | ·9519800 | 22 23·9 | 318 42 17·5 | 6 59 55·6 | ·61 |
| 9 | 3 34 50·44 | 16 7 39·7 | ·9613241 | 22 24·9 | 322 23 4·2 | 6 58 2·2 | ·60 |
| 10 | 3 39 47·32 | 16 32 46·5 | ·9705826 | 22 26·2 | 326 9 45·7 | 6 54 19·2 | ·59 |
| 11 | 3 44 58·02 | 16 58 34·9 | ·9797425 | 22 27·6 | 330 2 43·9 | 6 48 38·4 | ·59 |
| 12 | 3 50 22·64 | 17 24 57·7 | ·9887899 | 22 29·3 | 334 2 21·3 | 6 40 51·4 | ·58 |
| 13 | 3 56 1·28 | 17 51 47·7 | 9·9977106 | 22 31·2 | 338 9 0·5 | 6 30 49·5 | ·58 |
| 14 | 4 1 54·08 | 18 18 57·0 | 0·0064904 | 22 33·4 | 342 23 3·9 | 6 18 24·0 | ·57 |
| 15 | 4 8 1·15 | 18 46 17·6 | ·0151130 | 22 35·8 | 346 44 52·7 | 6 3 26·4 | ·56 |
| 16 | 4 14 22·64 | 19 13 41·0 | ·0235622 | 22 38·4 | 351 14 48·0 | 5 45 48·7 | ·55 |
| 17 | 4 20 58·66 | 19 40 58·3 | ·0318196 | 22 41·3 | 355 53 8·0 | 5 25 23·8 | ·55 |
| 18 | 4 27 49·33 | 20 7 59·9 | ·0398665 | 22 44·5 | 0 40 9·7 | 5 2 6·1 | ·54 |
| 19 | 4 34 54·64 | 20 34 36·4 | ·0476818 | 22 47·9 | 5 36 5·9 | 4 35 51·6 | ·53 |
| 20 | 4 42 14·63 | 21 0 36·6 | ·0552444 | 22 51·5 | 10 41 6·0 | 4 6 39·1 | ·53 |
| 21 | 4 49 49·20 | 21 25 49·7 | ·0625308 | 22 55·4 | 15 55 13·5 | 3 34 30·6 | ·52 |
| 22 | 4 57 38·16 | 21 50 4·8 | ·0695173 | 22 59·5 | 21 18 26·7 | 2 59 32·2 | ·51 |
| 23 | 5 5 41·22 | 22 13 9·3 | ·0761790 | 23 3·8 | 26 50 35·9 | 2 21 54·6 | ·51 |
| 24 | 5 13 57·92 | 22 34 51·3 | ·0824913 | 23 8·4 | 32 31 22·7 | 1 41 53·9 | ·50 |
| 25 | 5 22 27·64 | 22 54 58·7 | ·0884292 | 23 13·1 | 38 20 19·7 | 0 59 52·0 | ·50 |
| 26 | 5 31 9·62 | 23 13 19·2 | ·0939684 | 23 18·1 | 44 16 49·1 | S.0 16 16·5 | ·49 |
| 27 | 5 40 2·89 | 23 29 41·0 | ·0990870 | 23 23·2 | 50 20 2·8 | N.0 28 19·3 | ·49 |
| 28 | 5 49 6·30 | 23 43 53·0 | ·1037644 | 23 28·5 | 56 29 1·2 | 1 13 17·4 | ·49 |
| 29 | 5 58 18·56 | 23 55 44·9 | ·1079835 | 23 33·9 | 62 42 36·5 | 1 57 56·0 | ·48 |
| 30 | 6 7 38·18 | 24 5 7·6 | ·1117306 | 23 39·4 | 68 59 30·7 | 2 41 31·5 | ·48 |
| 31 | 6 17 3·57 | N.24 11 53·8 | 0·1149961 | 23 45·0 | 75 18 19·2 | N.3 23 20·0 | 9·48 |

# JUNE, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 3 6 25·15 | + 8·00 | 0·28 | N. 13 39 33·3 | +40·7 | 4·1 | 10·9 |
| 3 9 44·18 | 8·59 | 0·28 | 13 56 36·7 | 44·5 | 4·0 | 10·7 |
| 3 13 17·32 | 9·17 | 0·28 | 14 15 7·8 | 48·0 | 4·0 | 10·5 |
| 3 17 4·43 | 9·75 | 0·27 | 14 35 0·6 | 51·3 | 3·9 | 10·3 |
| 3 21 5·42 | 10·33 | 0·27 | 14 56 8·6 | 54·3 | 3·8 | 10·0 |
| 3 25 20·21 | 10·90 | 0·26 | 15 18 25·8 | 57·1 | 3·7 | 9·8 |
| 3 29 48·75 | 11·48 | 0·25 | 15 41 45·3 | 59·5 | 3·6 | 9·6 |
| 3 34 31·13 | 12·05 | 0·24 | 16 6 0·8 | 61·7 | 3·5 | 9·4 |
| 3 39 27·30 | 12·63 | 0·24 | 16 31 5·7 | 63·6 | 3·5 | 9·2 |
| 3 44 37·36 | 13·21 | 0·24 | 16 56 52·9 | 65·2 | 3·4 | 9·0 |
| 3 50 1·39 | 13·79 | 0·23 | 17 23 15·2 | 66·6 | 3·3 | 8·8 |
| 3 55 39·54 | 14·39 | 0·23 | 17 50 5·6 | 67·6 | 3·2 | 8·6 |
| 4 1 31·92 | 14·98 | 0·23 | 18 17 16·0 | 68·2 | 3·2 | 8·5 |
| 4 7 38·67 | 15·58 | 0·22 | 18 44 38·7 | 68·6 | 3·1 | 8·3 |
| 4 13 59·93 | 16·19 | 0·22 | 19 12 5·0 | 68·5 | 3·1 | 8·1 |
| 4 20 35·84 | 16·80 | 0·21 | 19 39 25·9 | 68·1 | 3·0 | 8·0 |
| 4 27 26·51 | 17·42 | 0·20 | 20 6 31·8 | 67·3 | 2·9 | 7·8 |
| 4 34 31·96 | 18·04 | 0·20 | 20 33 13·4 | 66·1 | 2·9 | 7·7 |
| 4 41 52·24 | 18·65 | 0·20 | 20 59 19·4 | 64·4 | 2·9 | 7·6 |
| 4 49 27·25 | 19·26 | 0·20 | 21 24 38·9 | 62·2 | 2·8 | 7·4 |
| 4 57 16·81 | 19·86 | 0·20 | 21 49 0·9 | 59·5 | 2·8 | 7·3 |
| 5 5 20·63 | 20·45 | 0·20 | 22 12 12·6 | 56·4 | 2·7 | 7·2 |
| 5 13 38·29 | 21·02 | 0·20 | 22 34 2·1 | 52·7 | 2·7 | 7·1 |
| 5 22 9·14 | 21·55 | 0·19 | 22 54 17·1 | 48·5 | 2·6 | 7·0 |
| 5 30 52·45 | 22·05 | 0·19 | 23 12 45·1 | 43·8 | 2·6 | 6·9 |
| 5 39 47·21 | 22·51 | 0·19 | 23 29 14·2 | 38·6 | 2·6 | 6·8 |
| 5 48 52·30 | 22·91 | 0·19 | 23 43 32·9 | 32·9 | 2·6 | 6·8 |
| 5 58 6·39 | 23·25 | 0·18 | 23 55 30·8 | 26·8 | 2·5 | 6·7 |
| 6 7 27·97 | 23·53 | 0·18 | 24 4 58·8 | 20·4 | 2·5 | 6·6 |
| 6 16 55·45 | 23·74 | 0·18 | 24 11 49·2 | 13·7 | 2·5 | 6·6 |
| 6 26 27·07 | +23·88 | 0·18 | N. 24 15 55·8 | + 6·8 | 2·5 | 6·5 |

# JULY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 6 17 3·57 | N.24 11 53·8 | 0·1149961 | 23 45·0 | 75 18 19·2 | N.3 23 20·0 | 9·487 |
| 2 | 6 26 33·03 | 24 15 57·4 | ·1177754 | 23 50·6 | 81 37 32·8 | 4 2 40·1 | ·488 |
| 3 | 6 36 4·84 | 24 17 14·9 | ·1200679 | 23 56·2 | 87 55 40·6 | 4 38 54·2 | ·489 |
| 4 | 6 45 37·25 | 24 15 43·7 | ·1218782 | * * | 94 11 12·8 | 5 11 30·7 | ·492 |
| 5 | 6 55 8·58 | 24 11 24·2 | ·1232159 | 0 1·8 | 100 22 43·8 | 5 40 5·5 | ·495 |
| 6 | 7 4 37·18 | 24 4 18·1 | ·1240932 | 0 7·3 | 106 28 54·8 | 6 4 21·8 | ·498 |
| 7 | 7 14 1·60 | 23 54 28·7 | ·1245269 | 0 12·8 | 112 28 36·0 | 6 24 11·1 | ·503 |
| 8 | 7 23 20·43 | 23 42 1·0 | ·1245363 | 0 18·2 | 118 20 47·6 | 6 39 32·3 | ·508 |
| 9 | 7 32 32·52 | 23 27 1·1 | ·1241419 | 0 23·5 | 124 4 41·6 | 6 50 30·7 | ·514 |
| 10 | 7 41 36·80 | 23 9 36·2 | ·1233657 | 0 28·6 | 129 39 41·4 | 6 57 17·2 | ·520 |
| 11 | 7 50 32·41 | 22 49 54·0 | ·1222313 | 0 33·6 | 135 5 21·5 | 7 0 6·8 | ·526 |
| 12 | 7 59 18·66 | 22 28 2·7 | ·1207611 | 0 38·5 | 140 21 27·4 | 6 59 17·4 | ·533 |
| 13 | 8 7 55·00 | 22 4 11·1 | ·1189776 | 0 43·2 | 145 27 53·3 | 6 55 8·6 | ·540 |
| 14 | 8 16 21·02 | 21 38 27·5 | ·1169025 | 0 47·6 | 150 24 41·6 | 6 48 0·7 | ·546 |
| 15 | 8 24 36·43 | 21 11 1·0 | ·1145558 | 0 52·0 | 155 12 1·0 | 6 38 14·0 | ·553 |
| 16 | 8 32 41·05 | 20 41 59·7 | ·1119575 | 0 56·1 | 159 50 6·1 | 6 26 8·2 | ·560 |
| 17 | 8 40 34·79 | 20 11 31·8 | ·1091246 | 1 0·1 | 164 19 15·1 | 6 12 1·9 | ·567 |
| 18 | 8 48 17·64 | 19 39 45·3 | ·1060739 | 1 3·8 | 168 39 49·9 | 5 56 12·4 | ·574 |
| 19 | 8 55 49·66 | 19 6 47·9 | ·1028203 | 1 7·4 | 172 52 14·2 | 5 38 55·4 | ·581 |
| 20 | 9 3 10·93 | 18 32 46·5 | ·0993769 | 1 10·8 | 176 56 52·5 | 5 20 25·3 | ·587 |
| 21 | 9 10 21·62 | 17 57 48·2 | ·0957554 | 1 14·1 | 180 54 10·8 | 5 0 54·8 | ·593 |
| 22 | 9 17 21·85 | 17 21 59·4 | ·0919667 | 1 17·1 | 184 44 34·9 | 4 40 35·3 | ·599 |
| 23 | 9 24 11·84 | 16 45 26·3 | ·0880197 | 1 20·0 | 188 28 30·8 | 4 19 36·7 | ·605 |
| 24 | 9 30 51·76 | 16 8 14·5 | ·0839224 | 1 22·7 | 192 6 23·6 | 3 58 7·7 | ·611 |
| 25 | 9 37 21·84 | 15 30 29·8 | ·0796819 | 1 25·3 | 195 38 37·7 | 3 36 15·9 | ·616 |
| 26 | 9 43 42·27 | 14 52 17·1 | ·0753037 | 1 27·7 | 199 5 37·2 | 3 14 7·9 | ·621 |
| 27 | 9 49 53·23 | 14 13 41·7 | ·0707928 | 1 29·9 | 202 27 44·9 | 2 51 49·5 | ·626 |
| 28 | 9 55 54·92 | 13 34 47·9 | ·0661529 | 1 32·0 | 205 45 23·1 | 2 29 25·5 | ·631 |
| 29 | 10 1 47·52 | 12 55 40·4 | ·0613872 | 1 33·9 | 208 58 52·5 | 2 7 0·3 | ·635 |
| 30 | 10 7 31·19 | 12 16 23·4 | ·0564984 | 1 35·7 | 212 8 33·5 | 1 44 37·5 | ·639 |
| 31 | 10 13 6·07 | 11 37 1·2 | ·0514876 | 1 37·3 | 215 14 45·4 | 1 22 20·2 | ·643 |
| 32 | 10 18 32·29 | N.10 57 37·6 | 0·0463568 | 1 38·8 | 218 17 46·1 | N.1 0 11·4 | 9·647 |

# JULY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 6 26 27 ·07 | +23 ·88 | 0 ·18 | N.24 15 55 ·8 | + 6 ·8 | 2 ·5 | 6 ·5 |
| 6 36 1 ·10 | 23 ·94 | 0 ·18 | 24 17 15 ·0 | — 0 ·2 | 2 ·5 | 6 ·5 |
| 6 45 35 ·74 | 23 ·93 | 0 ·18 | 24 15 44 ·2 | 7 ·3 | 2 ·5 | 6 ·5 |
| * * * | * | * | * * * | * | * | * |
| 6 55 9 ·29 | 23 ·85 | 0 ·18 | 24 11 23 ·8 | 14 ·4 | 2 ·5 | 6 ·5 |
| 7 4 40 ·07 | 23 ·70 | 0 ·18 | 24 4 15 ·5 | 21 ·3 | 2 ·5 | 6 ·5 |
| 7 14 6 ·60 | 23 ·50 | 0 ·18 | 23 54 22 ·7 | 28 ·1 | 2 ·5 | 6 ·5 |
| 7 23 27 ·45 | 23 ·23 | 0 ·18 | 23 41 50 ·5 | 34 ·6 | 2 ·4 | 6 ·4 |
| 7 32 41 ·46 | 22 ·93 | 0 ·18 | 23 26 45 ·2 | 40 ·8 | 2 ·4 | 6 ·4 |
| 7 41 47 ·55 | 22 ·58 | 0 ·18 | 23 9 14 ·1 | 46 ·7 | 2 ·5 | 6 ·5 |
| 7 50 44 ·81 | 22 ·19 | 0 ·18 | 22 49 24 ·8 | 52 ·3 | 2 ·5 | 6 ·5 |
| 7 59 32 ·60 | 21 ·79 | 0 ·18 | 22 27 25 ·9 | 57 ·5 | 2 ·5 | 6 ·5 |
| 8 8 10 ·32 | 21 ·36 | 0 ·18 | 22 3 26 ·4 | 62 ·4 | 2 ·5 | 6 ·5 |
| 8 16 37 ·58 | 20 ·91 | 0 ·18 | 21 37 34 ·6 | 66 ·9 | 2 ·5 | 6 ·6 |
| 8 24 54 ·11 | 20 ·46 | 0 ·18 | 21 9 59 ·8 | 71 ·0 | 2 ·5 | 6 ·6 |
| 8 32 59 ·71 | 20 ·00 | 0 ·18 | 20 40 50 ·0 | 74 ·8 | 2 ·5 | 6 ·6 |
| 8 40 54 ·32 | 19 ·55 | 0 ·18 | 20 10 13 ·8 | 78 ·2 | 2 ·5 | 6 ·7 |
| 8 48 37 ·91 | 19 ·09 | 0 ·18 | 19 38 19 ·0 | 81 ·3 | 2 ·5 | 6 ·7 |
| 8 56 10 ·56 | 18 ·63 | 0 ·19 | 19 5 13 ·6 | 84 ·1 | 2 ·6 | 6 ·8 |
| 9 3 32 ·36 | 18 ·19 | 0 ·19 | 18 31 4 ·6 | 86 ·6 | 2 ·6 | 6 ·8 |
| 9 10 43 ·49 | 17 ·74 | 0 ·19 | 17 55 58 ·8 | 88 ·8 | 2 ·6 | 6 ·9 |
| 9 17 44 ·06 | 17 ·31 | 0 ·19 | 17 20 3 ·0 | 90 ·8 | 2 ·6 | 6 ·9 |
| 9 24 34 ·32 | 16 ·88 | 0 ·19 | 16 43 23 ·2 | 92 ·5 | 2 ·6 | 7 ·0 |
| 9 31 14 ·44 | 16 ·46 | 0 ·19 | 16 6 5 ·2 | 94 ·0 | 2 ·7 | 7 ·1 |
| 9 37 44 ·63 | 16 ·05 | 0 ·19 | 15 28 14 ·7 | 95 ·2 | 2 ·7 | 7 ·1 |
| 9 44 5 ·13 | 15 ·65 | 0 ·19 | 14 49 56 ·7 | 96 ·2 | 2 ·7 | 7 ·2 |
| 9 50 16 ·07 | 15 ·26 | 0 ·19 | 14 11 16 ·5 | 97 ·1 | 2 ·8 | 7 ·3 |
| 9 56 17 ·72 | 14 ·88 | 0 ·19 | 13 32 18 ·3 | 97 ·7 | 2 ·8 | 7 ·4 |
| 10 2 10 ·21 | 14 ·50 | 0 ·19 | 12 53 6 ·8 | 98 ·2 | 2 ·8 | 7 ·5 |
| 10 7 53 ·72 | 14 ·13 | 0 ·20 | 12 13 46 ·5 | 98 ·5 | 2 ·8 | 7 ·5 |
| 10 13 28 ·39 | 13 ·76 | 0 ·20 | 11 34 21 ·4 | 98 ·6 | 2 ·9 | 7 ·6 |
| 10 18 54 ·36 | +13 ·40 | 0 ·20 | N.10 54 55 ·4 | —98 ·6 | 2 ·9 | 7 ·7 |

# AUGUST, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 10 18 32·29 | N.10 57 37·6 | 0·0463568 | 1 38·8 | 218 17 46·1 | N.1 0 11·4 | 9·6 |
| 2 | 10 23 49·94 | 10 18 16·5 | ·0411059 | 1 40·2 | 221 17 53·6 | 0 38 13·1 | ·6 |
| 3 | 10 28 59·12 | 9 39 2·0 | ·0357355 | 1 41·4 | 224 15 24·4 | N.0 16 27·6 | ·6 |
| 4 | 10 33 59·88 | 8 59 57·6 | ·0302450 | 1 42·4 | 227 10 34·8 | S.0 5 3·4 | ·6 |
| 5 | 10 38 52·23 | 8 21 6·9 | ·0246341 | 1 43·3 | 230 3 40·1 | 0 26 18·3 | ·6 |
| 6 | 10 43 36·20 | 7 42 33·7 | ·0189012 | 1 44·1 | 232 54 55·7 | 0 47 15·6 | ·6 |
| 7 | 10 48 11·73 | 7 4 21·9 | ·0130464 | 1 44·8 | 235 44 35·0 | 1 7 54·0 | ·6 |
| 8 | 10 52 38·78 | 6 26 35·3 | ·0070680 | 1 45·3 | 238 32 52·1 | 1 28 12·3 | ·6 |
| 9 | 10 56 57·25 | 5 49 17·4 | 0·0009645 | 1 45·6 | 241 20 1·0 | 1 48 9·4 | ·6 |
| 10 | 11 1 7·01 | 5 12 32·3 | 9·9947353 | 1 45·8 | 244 6 14·3 | 2 7 44·4 | ·6 |
| 11 | 11 5 7·90 | 4 36 24·2 | ·9883791 | 1 45·9 | 246 51 45·0 | 2 26 56·1 | ·6 |
| 12 | 11 8 59·70 | 4 0 57·1 | ·9818942 | 1 45·8 | 249 36 46·1 | 2 45 43·4 | ·6 |
| 13 | 11 12 42·19 | 3 26 15·4 | ·9752807 | 1 45·6 | 252 21 29·3 | 3 4 5·4 | ·6 |
| 14 | 11 16 15·06 | 2 52 23·8 | ·9685389 | 1 45·1 | 255 6 7·3 | 3 22 0·9 | ·6 |
| 15 | 11 19 37·99 | 2 19 27·4 | ·9616689 | 1 44·6 | 257 50 52·2 | 3 39 28·7 | ·6 |
| 16 | 11 22 50·61 | 1 47 31·1 | ·9546720 | 1 43·8 | 260 35 56·4 | 3 56 27·7 | ·6 |
| 17 | 11 25 52·46 | 1 16 40·5 | ·9475504 | 1 42·9 | 263 21 32·1 | 4 12 56·5 | ·6 |
| 18 | 11 28 43·06 | 0 47 2·0 | ·9403081 | 1 41·8 | 266 7 51·3 | 4 28 53·5 | ·6 |
| 19 | 11 31 21·94 | N. 0 18 41·2 | ·9329499 | 1 40·5 | 268 55 6·8 | 4 44 17·4 | ·6 |
| 20 | 11 33 48·44 | S. 0 8 14·5 | ·9254824 | 1 39·0 | 271 43 31·3 | 4 59 6·4 | ·6 |
| 21 | 11 36 1·94 | 0 33 37·9 | ·9179156 | 1 37·2 | 274 33 17·3 | 5 13 18·4 | ·6 |
| 22 | 11 38 1·76 | 0 57 21·1 | ·9102612 | 1 35·3 | 277 24 38·1 | 5 26 51·8 | ·6 |
| 23 | 11 39 47·13 | 1 19 15·2 | ·9025342 | 1 33·1 | 280 17 47·2 | 5 39 43·8 | ·6 |
| 24 | 11 41 17·29 | 1 39 11·4 | ·8947541 | 1 30·6 | 283 12 58·3 | 5 51 52·1 | ·6 |
| 25 | 11 42 31·42 | 1 56 59·8 | ·8869432 | 1 27·9 | 286 10 26·2 | 6 3 13·8 | ·6 |
| 26 | 11 43 28·65 | 2 12 29·7 | ·8791312 | 1 24·9 | 289 10 25·1 | 6 13 45·9 | ·6 |
| 27 | 11 44 8·15 | 2 25 30·4 | ·8713524 | 1 21·6 | 292 13 10·4 | 6 23 24·9 | ·6 |
| 28 | 11 44 29·06 | 2 35 50·3 | ·8636490 | 1 18·0 | 295 18 58·1 | 6 32 7·2 | ·6 |
| 29 | 11 44 30·61 | 2 43 17·6 | ·8560695 | 1 14·1 | 298 28 4·6 | 6 39 48·5 | ·6 |
| 30 | 11 44 12·09 | 2 47 40·3 | ·8486719 | 1 9·8 | 301 40 47·2 | 6 46 24·5 | ·6 |
| 31 | 11 43 32·89 | 2 48 46·7 | ·8415234 | 1 5·2 | 304 57 23·6 | 6 51 50·0 | ·6 |
| 32 | 11 42 32·63 | S. 2 46 25·8 | 9·8347003 | 1 0·3 | 308 18 12·4 | S.6 55 59·9 | 9·6 |

# AUGUST, 1845.

At Transit over the Meridian of Greenwich.

| *rent* ght nsion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 54·36 | +13·40 | 0·20 | N. 10 54 55·4 | −98·6 | 2·9 | 7·7 |
| 11·72 | 13·05 | 0·20 | 10 15 32·4 | 98·3 | 2·9 | 7·8 |
| 20·56 | 12·69 | 0·20 | 9 36 16·6 | 98·0 | 3·0 | 7·9 |
| 20·95 | 12·34 | 0·20 | 8 57 11·3 | 97·4 | 3·0 | 8·0 |
| 12·88 | 11·99 | 0·21 | 8 18 20·2 | 96·8 | 3·1 | 8·1 |
| 56·40 | 11·64 | 0·21 | 7 39 47·2 | 95·9 | 3·1 | 8·2 |
| 31·44 | 11·28 | 0·21 | 7 1 36·1 | 95·0 | 3·1 | 8·3 |
| 57·97 | 10·93 | 0·22 | 6 23 50·6 | 93·8 | 3·2 | 8·5 |
| 15·86 | 10·56 | 0·22 | 5 46 34·5 | 92·5 | 3·2 | 8·6 |
| 25·01 | 10·20 | 0·22 | 5 9 51·7 | 91·0 | 3·3 | 8·7 |
| 25·26 | 9·82 | 0·22 | 4 33 46·4 | 89·4 | 3·3 | 8·8 |
| 16·37 | 9·44 | 0·23 | 3 58 22·5 | 87·6 | 3·4 | 8·9 |
| 58·12 | 9·04 | 0·23 | 3 23 44·7 | 85·6 | 3·4 | 9·1 |
| 30·22 | 8·63 | 0·23 | 2 49 57·6 | 83·3 | 3·5 | 9·2 |
| 52·33 | 8·21 | 0·23 | 2 17 6·1 | 80·9 | 3·5 | 9·4 |
| 4·09 | 7·77 | 0·24 | 1 45 15·4 | 78·3 | 3·6 | 9·5 |
| 5·03 | 7·31 | 0·25 | 1 14 30·9 | 75·4 | 3·7 | 9·7 |
| 54·69 | 6·83 | 0·25 | 0 44 59·1 | 72·2 | 3·7 | 9·8 |
| 32·57 | 6·32 | 0·26 | N. 0 16 45·8 | 68·8 | 3·8 | 10·0 |
| 58·03 | 5·79 | 0·26 | S. 0 10 2·3 | 65·1 | 3·9 | 10·2 |
| 10·47 | 5·24 | 0·26 | 0 35 17·3 | 61·1 | 3·9 | 10·4 |
| 9·18 | 4·65 | 0·27 | 0 58 51·6 | 56·7 | 4·0 | 10·6 |
| 53·43 | 4·03 | 0·27 | 1 20 36·2 | 52·0 | 4·1 | 10·8 |
| 22·43 | 3·38 | 0·28 | 1 40 22·5 | 46·8 | 4·2 | 11·0 |
| 35·41 | 2·69 | 0·28 | 1 58 0·7 | 41·3 | 4·2 | 11·2 |
| 31·49 | 1·97 | 0·29 | 2 13 20·0 | 35·3 | 4·3 | 11·3 |
| 9·84 | 1·22 | 0·29 | 2 26 9·9 | 28·8 | 4·3 | 11·5 |
| 29·64 | + 0·43 | 0·30 | 2 36 19·0 | 21·9 | 4·5 | 11·8 |
| 30·15 | − 0·39 | 0·30 | 2 43 35·7 | 14·4 | 4·5 | 12·0 |
| 10·68 | 1·24 | 0·31 | 2 47 48·1 | − 6·5 | 4·6 | 12·2 |
| 30·63 | 2·10 | 0·31 | 2 48 44·9 | + 1·9 | 4·7 | 12·4 |
| 29·64 | − 2·98 | 0·32 | S. 2 46 15·3 | +10·7 | 4·8 | 12·6 |

# SEPTEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vec. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 11 42 32·63 | S. 2 46 25·8 | 9·8347003 | 1 0·3 | 308 18 12·4 | S. 6 55 59·9 | 9·62597 |
| 2 | 11 41 11·16 | 2 40 27·8 | ·8282903 | 0 55·0 | 311 43 32·7 | 6 58 48·0 | ·62106 |
| 3 | 11 39 28·61 | 2 30 44·4 | ·8223893 | 0 49·4 | 315 13 44·5 | 7 0 8·3 | ·61588 |
| 4 | 11 37 25·56 | 2 17 10·6 | ·8171023 | 0 43·4 | 318 49 8·5 | 6 59 53·7 | ·61046 |
| 5 | 11 35 3·02 | 1 59 44·6 | ·8125432 | 0 37·1 | 322 30 5·8 | 6 57 57·1 | ·60479 |
| 6 | 11 32 22·52 | 1 38 28·9 | ·8088267 | 0 30·5 | 326 16 58·7 | 6 54 10·6 | ·59889 |
| 7 | 11 29 26·22 | 1 13 31·8 | ·8060721 | 0 23·6 | 330 10 9·0 | 6 48 26·0 | ·59277 |
| 8 | 11 26 16·87 | 0 45 7·7 | ·8043937 | 0 16·6 | 334 9 59·1 | 6 40 35·0 | ·58645 |
| 9 | 11 22 57·85 | S. 0 13 37·4 | ·8038959 | 0 9·4 | 338 16 51·9 | 6 30 28·8 | ·57994 |
| 10 | 11 19 33·08 | N. 0 20 31·2 | ·8046697 | { 0 22·0 / 23 54·7 } | 342 31 9·3 | 6 17 58·8 | ·57328 |
| 11 | 11 16 7·04 | 0 56 43·8 | ·8067838 | 23 47·4 | 346 53 13·3 | 6 2 56·3 | ·56649 |
| 12 | 11 12 44·55 | 1 34 20·3 | ·8102810 | 23 40·3 | 351 23 23·8 | 5 45 13·6 | ·55961 |
| 13 | 11 9 30·61 | 2 12 36·4 | ·8151748 | 23 33·3 | 356 2 0·0 | 5 24 43·5 | ·55267 |
| 14 | 11 6 30·27 | 2 50 45·5 | ·8214452 | 23 26·7 | 0 49 18·0 | 5 1 20·3 | ·54574 |
| 15 | 11 3 48·38 | 3 28 0·0 | ·8290410 | 23 20·5 | 5 45 31·0 | 4 35 0·3 | ·53886 |
| 16 | 11 1 29·44 | 4 3 33·5 | ·8378790 | 23 14·7 | 10 50 48·1 | 4 5 42·3 | ·53210 |
| 17 | 10 59 37·40 | 4 36 43·3 | ·8478487 | 23 9·4 | 16 5 13·0 | 3 33 28·4 | ·52552 |
| 18 | 10 58 15·57 | 5 6 50·4 | ·8588178 | 23 4·6 | 21 28 43·2 | 2 58 24·9 | ·51921 |
| 19 | 10 57 26·51 | 5 33 22·1 | ·8706379 | 23 0·4 | 27 1 8·9 | 2 20 42·4 | ·51324 |
| 20 | 10 57 11·99 | 5 55 51·5 | ·8831501 | 22 56·8 | 32 42 10·9 | 1 40 37·8 | ·50771 |
| 21 | 10 57 33·00 | 6 13 58·2 | ·8961937 | 22 53·8 | 38 31 22·8 | 0 58 32·5 | ·50269 |
| 22 | 10 58 29·75 | 6 27 27·9 | ·9096068 | 22 51·4 | 44 28 5·8 | S. 0 14 54·6 | ·49828 |
| 23 | 11 0 1·78 | 6 36 12·6 | ·9232351 | 22 49·5 | 50 31 31·3 | N. 0 29 42·6 | ·49457 |
| 24 | 11 2 8·01 | 6 40 9·5 | ·9369325 | 22 48·2 | 56 40 40·1 | 1 14 40·8 | ·49161 |
| 25 | 11 4 46·84 | 6 39 20·8 | ·9505672 | 22 47·4 | 62 54 23·1 | 1 59 18·2 | ·48948 |
| 26 | 11 7 56·24 | 6 33 53·1 | ·9640205 | 22 47·1 | 69 11 22·4 | 2 42 51·1 | ·48822 |
| 27 | 11 11 33·89 | 6 23 56·4 | ·9771900 | 22 47·1 | 75 30 13·1 | 3 24 35·6 | ·48785 |
| 28 | 11 15 37·24 | 6 9 44·0 | 9·9899892 | 22 47·6 | 81 49 26·0 | 4 3 50·5 | ·48840 |
| 29 | 11 20 3·65 | 5 51 31·4 | 0·0023482 | 22 48·4 | 88 7 30·6 | 4 39 58·3 | ·48984 |
| 30 | 11 24 50·41 | 5 29 36·1 | ·0142127 | 22 49·6 | 94 22 57·2 | 5 12 27·7 | ·49214 |
| 31 | 11 29 54·93 | N. 5 4 16·6 | 0·0255424 | 22 50·9 | 100 34 20·0 | N. 5 40 54·7 | 9·49525 |

# SEPTEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *parent* ight ension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 29 ·64 | − 2 ·98 | 0 ·32 | S. 2 46 15 ·3 | + 10 ·7 | 4 ·8 | 12 ·6 |
| 1 7 ·62 | 3 ·85 | 0 ·32 | 2 40 9 ·7 | 19 ·8 | 4 ·8 | 12 ·8 |
| ) 24 ·73 | 4 ·72 | 0 ·33 | 2 30 20 ·3 | 29 ·3 | 4 ·9 | 12 ·9 |
| 7 21 ·54 | 5 ·54 | 0 ·33 | 2 16 42 ·5 | 38 ·9 | 4 ·9 | 13 ·1 |
| 1 59 ·10 | 6 ·32 | 0 ·34 | 1 59 14 ·6 | 48 ·4 | 5 ·0 | 13 ·2 |
| 2 18 ·94 | 7 ·01 | 0 ·34 | 1 37 59 ·4 | 57 ·8 | 5 ·0 | 13 ·3 |
| ) 23 ·20 | 7 ·61 | 0 ·34 | 1 13 5 ·4 | 66 ·6 | 5 ·1 | 13 ·4 |
| ) 14 ·62 | 8 ·08 | 0 ·34 | 0 44 47 ·0 | 74 ·8 | 5 ·1 | 13 ·5 |
| 2 56 ·53 | 8 ·40 | 0 ·34 | S. 0 13 24 ·6 | 81 ·9 | 5 ·1 | 13 ·5 |
| 9 32 ·79 / 9 7 ·80 | 8 ·55 / 8 ·50 | 0 ·34 / 0 ·34 | N. 0 20 34 ·3 / 0 50 25 ·6 | 87 ·8 / 92 ·1 | 5 ·1 / 5 ·1 | 13 ·4 / 13 ·4 |
| 2 46 ·30 | 8 ·26 | 0 ·34 | 1 34 0 ·4 | 94 ·7 | 5 ·0 | 13 ·3 |
| ) 33 ·19 | 7 ·80 | 0 ·33 | 2 12 4 ·9 | 95 ·4 | 4 ·9 | 13 ·1 |
| ) 33 ·46 | 7 ·14 | 0 ·33 | 2 50 3 ·4 | 94 ·2 | 4 ·9 | 12 ·9 |
| 3 51 ·89 | 6 ·29 | 0 ·32 | 3 27 9 ·2 | 91 ·0 | 4 ·8 | 12 ·7 |
| 1 32 ·92 | 5 ·26 | 0 ·31 | 4 2 36 ·6 | 86 ·0 | 4 ·7 | 12 ·5 |
| ) 40 ·49 | 4 ·08 | 0 ·31 | 4 35 43 ·1 | 79 ·3 | 4 ·6 | 12 ·2 |
| 1 17 ·91 | 2 ·78 | 0 ·30 | 5 5 50 ·2 | 71 ·1 | 4 ·5 | 11 ·9 |
| 7 27 ·78 | − 1 ·39 | 0 ·30 | 5 32 25 ·1 | 61 ·6 | 4 ·4 | 11 ·6 |
| 7 11 ·89 | + 0 ·07 | 0 ·29 | 5 55 0 ·7 | 51 ·2 | 4 ·3 | 11 ·3 |
| 7 31 ·34 | 1 ·55 | 0 ·27 | 6 13 16 ·1 | 40 ·0 | 4 ·1 | 10 ·9 |
| 1 26 ·36 | 3 ·03 | 0 ·27 | 6 26 56 ·7 | 28 ·3 | 4 ·0 | 10 ·6 |
| ) 56 ·61 | 4 ·48 | 0 ·26 | 6 35 54 ·1 | 16 ·4 | 3 ·9 | 10 ·2 |
| 2 1 ·06 | 5 ·88 | 0 ·25 | 6 40 4 ·7 | + 4 ·5 | 3 ·7 | 9 ·9 |
| 1 38 ·17 | 7 ·20 | 0 ·24 | 6 39 29 ·9 | − 7 ·3 | 3 ·6 | 9 ·6 |
| 7 45 ·98 | 8 ·43 | 0 ·23 | 6 34 16 ·1 | 18 ·8 | 3 ·5 | 9 ·3 |
| 22 ·21 | 9 ·57 | 0 ·23 | 6 24 32 ·9 | 29 ·7 | 3 ·4 | 9 ·1 |
| 3 24 ·35 | 10 ·59 | 0 ·22 | 6 10 33 ·1 | 40 ·1 | 3 ·3 | 8 ·8 |
| ) 49 ·75 | 11 ·51 | 0 ·22 | 5 52 31 ·8 | 49 ·8 | 3 ·2 | 8 ·6 |
| 1 35 ·71 | 12 ·31 | 0 ·21 | 5 30 46 ·4 | 58 ·8 | 3 ·1 | 8 ·3 |
| ) 39 ·66 | 13 ·00 | 0 ·21 | 5 5 35 ·4 | 67 ·0 | 3 ·1 | 8 ·1 |
| 1 59 ·01 | + 13 ·59 | 0 ·20 | N. 4 37 17 ·5 | − 74 ·4 | 3 ·0 | 7 ·9 |

# OCTOBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 11 29 54·93 | N. 5 4 16·6 | 0·0255424 | 22 50·9 | 100 34 20·0 | N.5 40 54·7 | 9·4951 |
| 2 | 11 35 41·66 | 4 35 51·7 | ·0363108 | 22 52·5 | 106 40 20·3 | 6 5 2·8 | ·4991 |
| 3 | 11 40 47·26 | 4 4 41·3 | ·0465025 | 22 54·3 | 112 39 48·5 | 6 24 43·9 | ·5030 |
| 4 | 11 46 30·57 | 3 31 4·0 | ·0561134 | 22 56·2 | 118 31 45·7 | 6 39 56·7 | ·5087 |
| 5 | 11 52 22·63 | 2 55 18·4 | ·0651463 | 22 58·3 | 124 15 24·2 | 6 50 47·2 | ·5141 |
| 6 | 11 58 21·71 | 2 17 42·1 | ·0736115 | 23 0·4 | 129 50 7·4 | 6 57 26·1 | ·5200 |
| 7 | 12 4 26·33 | 1 38 31·2 | ·0815246 | 23 2·6 | 135 15 30·6 | 7 0 8·6 | ·5266 |
| 8 | 12 10 35·17 | 0 58 1·2 | ·0889044 | 23 4·8 | 140 31 19·0 | 6 59 12·6 | ·5333 |
| 9 | 12 16 47·14 | N. 0 16 26·0 | ·0957725 | 23 7·1 | 145 37 26·9 | 6 54 57·9 | ·5400 |
| 10 | 12 23 1·34 | S. 0 26 1·5 | ·1021514 | 23 9·5 | 150 33 57·6 | 6 47 44·7 | ·5477 |
| 11 | 12 29 17·03 | 1 9 10·2 | ·1080662 | 23 11·8 | 155 20 59·8 | 6 37 53·3 | ·5554 |
| 12 | 12 35 33·57 | 1 52 49·3 | ·1135408 | 23 14·2 | 159 58 48·3 | 6 25 43·4 | ·5619 |
| 13 | 12 41 50·53 | 2 36 50·0 | ·1185980 | 23 16·5 | 164 27 41·2 | 6 11 33·6 | ·5677 |
| 14 | 12 48 7·50 | 3 21 3·7 | ·1232616 | 23 18·8 | 168 48 0·6 | 5 55 41·1 | ·5744 |
| 15 | 12 54 24·23 | 4 5 23·6 | ·1275534 | 23 21·2 | 173 0 10·1 | 5 38 21·6 | ·5811 |
| 16 | 13 0 40·49 | 4 49 42·7 | ·1314933 | 23 23·5 | 177 4 34·4 | 5 19 49·4 | ·5877 |
| 17 | 13 6 56·17 | 5 33 55·4 | ·1351021 | 23 25·8 | 181 1 39·8 | 5 0 17·1 | ·5944 |
| 18 | 13 13 11·19 | 6 17 56·8 | ·1383974 | 23 28·1 | 184 51 51·5 | 4 39 56·3 | ·6000 |
| 19 | 13 19 25·49 | 7 1 42·3 | ·1413958 | 23 30·4 | 188 35 35·8 | 4 18 56·5 | ·6055 |
| 20 | 13 25 39·09 | 7 45 7·8 | ·1441127 | 23 32·7 | 192 13 17·6 | 3 57 26·6 | ·6111 |
| 21 | 13 31 52·01 | 8 28 9·9 | ·1465627 | 23 34·9 | 195 45 21·7 | 3 35 34·2 | ·6166 |
| 22 | 13 38 4·31 | 9 10 45·1 | ·1487587 | 23 37·2 | 199 12 11·5 | 3 13 25·8 | ·6222 |
| 23 | 13 44 16·06 | 9 52 50·9 | ·1507120 | 23 39·4 | 202 34 10·9 | 2 51 7·1 | ·6266 |
| 24 | 13 50 27·34 | 10 34 24·4 | ·1524340 | 23 41·7 | 205 51 40·9 | 2 28 43·0 | ·6311 |
| 25 | 13 56 38·23 | 11 15 23·4 | ·1539338 | 23 43·9 | 209 5 2·7 | 2 6 17·8 | ·6355 |
| 26 | 14 2 48·85 | 11 55 45·7 | ·1552202 | 23 46·1 | 212 14 36·8 | 1 43 55·2 | ·6399 |
| 27 | 14 8 59·32 | 12 35 29·6 | ·1563011 | 23 48·4 | 215 20 42·1 | 1 21 38·2 | ·6437 |
| 28 | 14 15 9·71 | 13 14 32·6 | ·1571829 | 23 50·6 | 218 23 37·0 | 0 59 29·5 | ·6475 |
| 29 | 14 21 20·17 | 13 52 53·7 | ·1578717 | 23 52·9 | 221 23 39·3 | 0 37 31·6 | ·6505 |
| 30 | 14 27 30·79 | 14 30 30·9 | ·1583735 | 23 55·1 | 224 21 5·3 | N.0 15 46·5 | ·6533 |
| 31 | 14 33 41·67 | 15 7 22·7 | ·1586921 | 23 57·4 | 227 16 11·3 | S.0 5 43·9 | ·6564 |
| 32 | 14 39 52·93 | S. 15 43 27·8 | 0·1588316 | 23 59·6 | 230 9 12·8 | S.0 26 58·2 | 9·6587 |

# OCTOBER, 1845.

At Transit over the Meridian of Greenwich.

| *arent* ght nsion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 59 ·01 | +13 ·59 | 0 ·20 | N. 4 37 17 ·5 | — 74 ·4 | 3 ·0 | 7 ·9 |
| 31 ·42 | 14 ·09 | 0 ·19 | 4 6 12 ·3 | 80 ·9 | 2 ·9 | 7 ·7 |
| 14 ·70 | 14 ·50 | 0 ·19 | 3 32 39 ·0 | 86 ·7 | 2 ·8 | 7 ·5 |
| 6 ·87 | 14 ·83 | 0 ·19 | 2 56 56 ·0 | 91 ·7 | 2 ·8 | 7 ·4 |
| 6 ·20 | 15 ·10 | 0 ·19 | 2 19 20 ·9 | 96 ·1 | 2 ·8 | 7 ·3 |
| 11 ·14 | 15 ·30 | 0 ·18 | 1 40 10 ·2 | 99 ·7 | 2 ·7 | 7 ·1 |
| 20 ·40 | 15 ·46 | 0 ·18 | 0 59 39 ·4 | 102 ·8 | 2 ·6 | 7 ·0 |
| 32 ·85 | 15 ·57 | 0 ·18 | N. 0 18 2 ·7 | 105 ·2 | 2 ·6 | 6 ·9 |
| 47 ·58 | 15 ·65 | 0 ·18 | S. 0 24 27 ·2 | 107 ·2 | 2 ·6 | 6 ·8 |
| 3 ·83 | 15 ·70 | 0 ·17 | 1 7 38 ·7 | 108 ·7 | 2 ·5 | 6 ·7 |
| 20 ·97 | 15 ·73 | 0 ·17 | 1 51 21 ·3 | 109 ·8 | 2 ·5 | 6 ·6 |
| 38 ·53 | 15 ·73 | 0 ·17 | 2 35 25 ·6 | 110 ·5 | 2 ·5 | 6 ·5 |
| 56 ·12 | 15 ·73 | 0 ·17 | 3 19 43 ·4 | 110 ·9 | 2 ·5 | 6 ·5 |
| 13 ·46 | 15 ·71 | 0 ·16 | 4 4 7 ·6 | 111 ·0 | 2 ·4 | 6 ·4 |
| 30 ·35 | 15 ·69 | 0 ·16 | 4 48 31 ·1 | 110 ·9 | 2 ·4 | 6 ·4 |
| 46 ·65 | 15 ·67 | 0 ·16 | 5 32 48 ·2 | 110 ·5 | 2 ·4 | 6 ·3 |
| 2 ·29 | 15 ·64 | 0 ·16 | 6 16 54 ·3 | 110 ·0 | 2 ·3 | 6 ·2 |
| 17 ·21 | 15 ·61 | 0 ·15 | 7 0 44 ·3 | 109 ·2 | 2 ·3 | 6 ·2 |
| 31 ·42 | 15 ·58 | 0 ·15 | 7 44 14 ·4 | 108 ·3 | 2 ·3 | 6 ·2 |
| 44 ·94 | 15 ·55 | 0 ·15 | 8 27 21 ·1 | 107 ·2 | 2 ·3 | 6 ·1 |
| 57 ·84 | 15 ·53 | 0 ·15 | 9 10 0 ·9 | 106 ·1 | 2 ·3 | 6 ·1 |
| 10 ·18 | 15 ·50 | 0 ·15 | 9 52 11 ·2 | 104 ·8 | 2 ·3 | 6 ·1 |
| 22 ·04 | 15 ·49 | 0 ·15 | 10 33 49 ·0 | 103 ·4 | 2 ·3 | 6 ·0 |
| 33 ·51 | 15 ·47 | 0 ·15 | 11 14 52 ·3 | 101 ·9 | 2 ·3 | 6 ·0 |
| 44 ·71 | 15 ·46 | 0 ·15 | 11 55 18 ·9 | 100 ·3 | 2 ·3 | 6 ·0 |
| 55 ·76 | 15 ·46 | 0 ·15 | 12 35 6 ·9 | 98 ·7 | 2 ·3 | 6 ·0 |
| 6 ·73 | 15 ·46 | 0 ·15 | 13 14 13 ·9 | 96 ·9 | 2 ·3 | 6 ·0 |
| 17 ·76 | 15 ·46 | 0 ·15 | 13 52 38 ·8 | 95 ·1 | 2 ·3 | 6 ·0 |
| 28 ·96 | 15 ·47 | 0 ·15 | 14 30 19 ·8 | 93 ·3 | 2 ·2 | 5 ·9 |
| 40 ·41 | 15 ·48 | 0 ·15 | 15 7 15 ·3 | 91 ·3 | 2 ·2 | 5 ·9 |
| 52 ·25 | 15 ·50 | 0 ·15 | 15 43 23 ·9 | 89 ·4 | 2 ·2 | 5 ·9 |
| 4 ·58 | +15 ·52 | 0 ·15 | S. 16 18 44 ·0 | — 87 ·3 | 2 ·2 | 5 ·9 |

# OCTOBER, 1845.

## MEAN TIME

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meri[illegible] P[illegible] | *Longitude.* | Latitude. | [illegible] |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | ″ | ° ′ ″ | ° ′ ″ | |
| 1 | 11 29 54·93 | N. 5 4 16·6 | 0·0255[illegible] | [illegible]39·6 | 230 9 12·8 | S. 0 26 58·2 | [illegible] |
| 2 | 11 35 41·66 | 4 35 51·7 | ·0363[illegible] | [illegible] | 233 0 24·4 | 0 47 54·9 | |
| 3 | 11 40 47·26 | 4 4 41·3 | ·046[illegible] | [illegible] 1·9 | 235 50 0·7 | 1 8 32·7 | |
| 4 | 11 46 30·57 | 3 31 4·0 | [illegible] | 0 4·2 | 238 38 15·3 | 1 28 50·2 | |
| 5 | 11 52 22·63 | 2 55 18·4 | [illegible] | 0 6·4 | 241 25 22·2 | 1 48 46·8 | |
| 6 | 11 58 21·71 | 2 17 42·1 | [illegible] | 0 8·7 | 244 11 33·8 | 2 8 21·0 | |
| 7 | 12 4 26·33 | 1 38 3[illegible] | [illegible]360454 | 0 11·1 | 246 57 3·1 | 2 27 31·9 | |
| 8 | 12 10 35·17 | 0 58 | [illegible]1549885 | 0 13·4 | 249 42 3·0 | 2 46 18·4 | |
| 9 | 12 16 47·14 | N. 0 16 | [illegible]1537622 | 0 15·8 | 252 26 45·8 | 3 4 39·5 | |
| 10 | 12 23 1·34 | S. 0 [illegible] | ·1523653 | 0 18·1 | 255 11 23·5 | 3 22 34·2 | |
| 11 | 12 29 17·03 | [illegible] | ·1507959 | 0 20·5 | 257 56 9·0 | 3 40 1·1 | |
| 12 | 12 35 33·57 | [illegible] | ·1490521 | 0 22·9 | 260 41 13·9 | 3 56 59·1 | |
| 13 | 12 41 50·53 | [illegible] | ·1471309 | 0 25·3 | 263 26 50·3 | 4 13 26·8 | |
| 14 | 12 48 7·5[illegible] | [illegible] | ·1450285 | 0 27·8 | 266 13 11·1 | 4 29 22·9 | |
| 15 | 12 54 24·[illegible] | [illegible] | ·1427416 | 0 30·3 | 269 0 28·4 | 4 44 45·7 | |
| 16 | 13 0 4[illegible] | [illegible] | ·1402651 | 0 32·7 | 271 48 54·8 | 4 59 33·6 | |
| 17 | 13 6 [illegible] | [illegible] | ·1375943 | 0 35·2 | 274 38 43·3 | 5 13 44·5 | |
| 18 | 13 13 [illegible] | [illegible] | ·1347228 | 0 37·7 | 277 30 7·5 | 5 27 16·5 | |
| 19 | 13 1[illegible] | 23 53 49·3 | ·1316449 | 0 40·2 | 280 23 20·1 | 5 40 7·2 | |
| 20 | 13 [illegible] | 24 10 46·2 | ·1283530 | 0 42·8 | 283 18 35·2 | 5 52 14·1 | |
| 21 | 13 [illegible] | 24 26 28·3 | ·1248398 | 0 45·3 | 286 16 7·2 | 6 3 34·3 | |
| 22 | [illegible] | 24 40 54·3 | ·1210960 | 0 47·8 | 289 16 11·0 | 6 14 4·7 | |
| 23 | [illegible] | 24 54 2·8 | ·1171128 | 0 50·4 | 292 19 1·6 | 6 23 42·1 | |
| 24 | [illegible] | 25 5 52·1 | ·1128800 | 0 52·9 | 295 24 55·5 | 6 32 22·5 | |
| 2[illegible] | [illegible] | 25 16 21·0 | ·1083865 | 0 55·4 | 298 34 8·6 | 6 40 1·9 | |
| 2[illegible] | [illegible] | 25 25 28·2 | ·1036207 | 0 57·9 | 301 46 58·2 | 6 46 35·8 | |
| [illegible] | [illegible] | 25 33 12·3 | ·0985706 | 1 0·4 | 305 3 42·2 | 6 51 59·0 | |
| [illegible] | [illegible] | 25 39 32·4 | ·0932225 | 1 2·8 | 308 24 39·2 | 6 56 6·4 | |
| [illegible] | [illegible] | 25 44 27·2 | ·0875623 | 1 5·2 | 311 50 8·4 | 6 58 52·0 | |
| [illegible] | [illegible] | 25 47 56·4 | ·0815749 | 1 7·5 | 315 20 29·7 | 7 0 9·3 | |
| [illegible] | 17 30 25·08 | S. 25 49 58·8 | 0·0752453 | 1 9·7 | 318 56 4·1 | S. 6 59 51·7 | |

MERCURY.

## MBER, 1845.

eridian of Greenwich.

| | | Time of Sem. pass. Mer. | Apparent Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| | ·5 ·52 | s 0 ·15 | ° ′ ″ S. 16 18 44 ·0 | ″ —87 ·3 | ″ 2 ·2 | ″ 5 ·9 |
| | * 15 ·55 | * 0 ·16 | * * * 16 53 14 ·4 | * 85 ·2 | * 2 ·2 | * 5 ·9 |
| 08 | 15 ·58 | 0 ·16 | 17 26 53 ·7 | 83 ·1 | 2 ·3 | 6 ·0 |
| ·41 | 15 ·61 | 0 ·16 | 17 59 40 ·7 | 80 ·9 | 2 ·3 | 6 ·0 |
| 0 ·59 | 15 ·65 | 0 ·16 | 18 31 34 ·0 | 78 ·6 | 2 ·3 | 6 ·0 |
| 7 16 ·66 | 15 ·69 | 0 ·16 | 19 2 31 ·9 | 76 ·3 | 2 ·3 | 6 ·0 |
| 3 33 ·71 | 15 ·73 | 0 ·16 | 19 32 33 ·6 | 73 ·9 | 2 ·3 | 6 ·0 |
| 9 51 ·78 | 15 ·77 | 0 ·16 | 20 1 37 ·6 | 71 ·4 | 2 ·3 | 6 ·0 |
| 6 10 ·89 | 15 ·82 | 0 ·16 | 20 29 42 ·6 | 69 ·0 | 2 ·3 | 6 ·0 |
| 2 31 ·10 | 15 ·87 | 0 ·16 | 20 56 47 ·4 | 66 ·4 | 2 ·3 | 6 ·1 |
| 8 52 ·41 | 15 ·91 | 0 ·16 | 21 22 49 ·8 | 63 ·8 | 2 ·3 | 6 ·1 |
| 5 14 ·82 | 15 ·96 | 0 ·17 | 21 47 49 ·3 | 61 ·1 | 2 ·3 | 6 ·1 |
| 1 38 ·31 | 16 ·00 | 0 ·17 | 22 11 44 ·2 | 58 ·4 | 2 ·3 | 6 ·1 |
| 8 2 ·88 | 16 ·04 | 0 ·17 | 22 34 32 ·9 | 55 ·6 | 2 ·3 | 6 ·2 |
| 4 28 ·41 | 16 ·08 | 0 ·17 | 22 56 14 ·4 | 52 ·8 | 2 ·3 | 6 ·2 |
| 0 54 ·87 | 16 ·12 | 0 ·17 | 23 16 46 ·9 | 49 ·9 | 2 ·3 | 6 ·2 |
| 7 22 ·15 | 16 ·15 | 0 ·17 | 23 36 8 ·9 | 46 ·9 | 2 ·4 | 6 ·3 |
| 3 50 ·17 | 16 ·19 | 0 ·17 | 23 54 18 ·7 | 43 ·9 | 2 ·4 | 6 ·3 |
| 0 18 ·69 | 16 ·20 | 0 ·18 | 24 11 15 ·3 | 40 ·8 | 2 ·4 | 6 ·4 |
| 6 47 ·55 | 16 ·21 | 0 ·18 | 24 26 56 ·7 | 37 ·6 | 2 ·4 | 6 ·4 |
| 3 16 ·57 | 16 ·21 | 0 ·18 | 24 41 21 ·8 | 34 ·4 | 2 ·5 | 6 ·5 |
| 9 45 ·46 | 16 ·20 | 0 ·18 | 24 54 28 ·9 | 31 ·2 | 2 ·5 | 6 ·5 |
| 6 13 ·92 | 16 ·17 | 0 ·18 | 25 6 16 ·6 | 27 ·8 | 2 ·5 | 6 ·6 |
| 2 41 ·57 | 16 ·13 | 0 ·18 | 25 16 43 ·6 | 24 ·4 | 2 ·5 | 6 ·7 |
| 9 8 ·03 | 16 ·07 | 0 ·19 | 25 25 48 ·5 | 21 ·0 | 2 ·6 | 6 ·8 |
| 5 32 ·79 | 15 ·99 | 0 ·19 | 25 33 29 ·9 | 17 ·5 | 2 ·6 | 6 ·8 |
| 1 55 ·33 | 15 ·88 | 0 ·19 | 25 39 47 ·1 | 13 ·9 | 2 ·6 | 6 ·9 |
| 8 15 ·02 | 15 ·75 | 0 ·19 | 25 44 38 ·6 | 10 ·4 | 2 ·6 | 7 ·0 |
| 4 31 ·16 | 15 ·59 | 0 ·20 | 25 48 4 ·1 | 6 ·8 | 2 ·7 | 7 ·1 |
| 0 42 ·94 | +15 ·39 | 0 ·20 | S. 25 50 2 ·5 | — 3 ·1 | 2 ·7 | 7 ·2 |

# DECEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 17 50 25·08 | S. 25 49 58·8 | 0·0752453 | 1 9·7 | 318 56 4·1 | S. 6 59 51·7 | 9·610 |
| 2 | 17 56 31·30 | 25 50 34·3 | ·0685569 | 1 11·9 | 322 37 12·2 | 6 57 51·9 | ·604 |
| 3 | 18 2 31·29 | 25 49 42·6 | ·0614936 | 1 13·9 | 326 24 16·6 | 6 54 1·7 | ·598 |
| 4 | 18 8 23·90 | 25 47 24·1 | ·0540390 | 1 15·9 | 330 17 39·0 | 6 48 13·4 | ·592 |
| 5 | 18 14 7·77 | 25 43 39·4 | ·0461761 | 1 17·7 | 334 17 42·0 | 6 40 18·3 | ·586 |
| 6 | 18 19 41·44 | 25 38 30·0 | ·0378895 | 1 19·2 | 338 24 48·4 | 6 30 7·7 | ·579 |
| 7 | 18 25 3·20 | 25 31 57·1 | ·0291659 | 1 20·7 | 342 39 20·0 | 6 17 33·0 | ·573 |
| 8 | 18 30 11·13 | 25 24 3·2 | ·0199922 | 1 21·8 | 347 1 38·7 | 6 2 25·8 | ·566 |
| 9 | 18 35 3·11 | 25 14 51·2 | ·0103608 | 1 22·7 | 351 32 4·9 | 5 44 37·9 | ·559 |
| 10 | 18 39 36·71 | 25 4 24·9 | 0·0002679 | 1 23·3 | 356 10 57·1 | 5 24 2·5 | ·552 |
| 11 | 18 43 49·29 | 24 52 49·2 | 9·9897165 | 1 23·6 | 0 58 31·7 | 5 0 33·8 | ·545 |
| 12 | 18 47 37·90 | 24 40 9·3 | ·9787187 | 1 23·4 | 5 55 1·6 | 4 34 8·2 | ·538 |
| 13 | 18 50 59·34 | 24 26 31·8 | ·9672981 | 1 22·8 | 11 0 35·9 | 4 4 44·7 | ·531 |
| 14 | 18 53 50·19 | 24 12 4·5 | ·9554937 | 1 21·7 | 16 15 17·5 | 3 32 25·5 | ·525 |
| 15 | 18 56 6·81 | 23 56 55·2 | ·9433626 | 1 20·0 | 21 39 4·5 | 2 57 16·8 | ·519 |
| 16 | 18 57 45·46 | 23 41 12·9 | ·9309857 | 1 17·7 | 27 11 46·4 | 2 19 29·8 | ·513 |
| 17 | 18 58 42·53 | 23 25 7·0 | ·9184696 | 1 14·6 | 32 53 4·8 | 1 39 21·0 | ·507 |
| 18 | 18 58 54·61 | 23 8 47·3 | ·9059523 | 1 10·9 | 38 42 31·4 | 0 57 12·3 | ·502 |
| 19 | 18 58 18·80 | 22 52 23·1 | ·8936038 | 1 6·3 | 44 39 27·7 | S. 0 13 32·0 | ·498 |
| 20 | 18 56 53·10 | 22 36 3·8 | ·8816294 | 1 0·9 | 50 43 4·4 | N. 0 31 6·4 | ·494 |
| 21 | 18 54 36·76 | 22 19 57·4 | ·8702630 | 0 54·7 | 56 52 22·9 | 1 16 4·6 | ·491 |
| 22 | 18 51 30·60 | 22 4 12·0 | ·8597629 | 0 47·7 | 63 6 13·4 | 2 0 40·7 | ·489 |
| 23 | 18 47 37·51 | 21 48 54·4 | ·8503999 | 0 39·9 | 69 23 17·6 | 2 44 10·9 | ·488 |
| 24 | 18 43 2·54 | 21 34 11·4 | ·8424381 | 0 31·4 | 75 42 10·6 | 3 25 51·4 | ·487 |
| 25 | 18 37 52·98 | 21 20 10·5 | ·8361166 | 0 22·3 | 82 1 23·4 | 4 5 1·0 | ·488 |
| 26 | 18 32 18·13 | 21 7 0·0 | ·8316252 | 0 12·8 | 88 19 24·7 | 4 41 2·4 | ·489 |
| 27 | 18 26 28·78 | 20 54 49·8 | ·8290900 | { 0 9·1 / 23 53·4 } | 94 34 44·7 | 5 13 24·6 | ·492 |
| 28 | 18 20 36·38 | 20 43 50·8 | ·8285550 | 23 43·8 | 100 45 58·8 | 5 41 43·8 | ·495 |
| 29 | 18 14 52·31 | 20 34 15·1 | ·8299823 | 23 34·5 | 106 51 48·4 | 6 5 43·7 | ·499 |
| 30 | 18 9 26·99 | 20 26 14·1 | ·8332582 | 23 25·6 | 112 51 4·0 | 6 25 16·4 | ·503 |
| 31 | 18 4 29·28 | 20 19 57·7 | ·8382066 | 23 17·3 | 118 42 46·5 | 6 40 21·0 | ·508 |
| 32 | 18 0 6·03 | S. 20 15 32·8 | 9·8446085 | 23 9·7 | 124 26 9·0 | N. 6 51 3·4 | 9·514 |

# DECEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 50 42 ·94 | +15 ·39 | 0 ·20 | S. 25 50 2 ·5 | — 3 ·1 | 2 ·7 | 7 ·2 |
| 56 49 ·43 | 15 ·15 | 0 ·21 | 25 50 33 ·8 | + 0 ·5 | 2 ·8 | 7 ·3 |
| 2 49 ·58 | 14 ·86 | 0 ·21 | 25 49 37 ·6 | 4 ·2 | 2 ·8 | 7 ·4 |
| 8 42 ·26 | 14 ·52 | 0 ·21 | 25 47 14 ·5 | 7 ·8 | 2 ·9 | 7 ·6 |
| 14 26 ·04 | 14 ·12 | 0 ·21 | 25 43 24 ·9 | 11 ·3 | 2 ·9 | 7 ·7 |
| 19 59 ·48 | 13 ·65 | 0 ·22 | 25 38 10 ·5 | 14 ·9 | 3 ·0 | 7 ·9 |
| 25 20 ·84 | 13 ·11 | 0 ·22 | 25 31 32 ·7 | 18 ·3 | 3 ·0 | 8 ·0 |
| 30 28 ·18 | 12 ·49 | 0 ·23 | 25 23 33 ·8 | 21 ·6 | 3 ·1 | 8 ·2 |
| 35 19 ·36 | 11 ·76 | 0 ·24 | 25 14 17 ·1 | 24 ·8 | 3 ·2 | 8 ·4 |
| 39 51 ·94 | 10 ·93 | 0 ·24 | 25 3 46 ·4 | 27 ·8 | 3 ·2 | 8 ·6 |
| 44 3 ·26 | 9 ·99 | 0 ·24 | 24 52 6 ·8 | 30 ·5 | 3 ·3 | 8 ·8 |
| 47 50 ·36 | 8 ·91 | 0 ·25 | 24 39 23 ·4 | 33 ·0 | 3 ·4 | 9 ·0 |
| 51 10 ·04 | 7 ·70 | 0 ·26 | 24 25 43 ·1 | 35 ·3 | 3 ·5 | 9 ·2 |
| 53 58 ·90 | 6 ·34 | 0 ·27 | 24 11 13 ·9 | 37 ·1 | 3 ·6 | 9 ·5 |
| 56 13 ·33 | 4 ·83 | 0 ·27 | 23 56 3 ·6 | 38 ·7 | 3 ·7 | 9 ·8 |
| 57 49 ·64 | 3 ·17 | 0 ·28 | 23 40 21 ·3 | 39 ·8 | 3 ·8 | 10 ·1 |
| 58 44 ·31 | + 1 ·36 | 0 ·29 | 23 24 16 ·4 | 40 ·5 | 3 ·9 | 10 ·4 |
| 58 53 ·98 | — 0 ·57 | 0 ·30 | 23 7 58 ·9 | 40 ·9 | 4 ·0 | 10 ·7 |
| 58 15 ·96 | 2 ·61 | 0 ·31 | 22 51 37 ·8 | 40 ·8 | 4 ·2 | 11 ·0 |
| 56 48 ·36 | 4 ·70 | 0 ·32 | 22 35 22 ·6 | 40 ·4 | 4 ·3 | 11 ·3 |
| 54 30 ·58 | 6 ·78 | 0 ·32 | 22 19 21 ·1 | 39 ·7 | 4 ·4 | 11 ·6 |
| 51 23 ·61 | 8 ·78 | 0 ·32 | 22 3 41 ·1 | 38 ·6 | 4 ·5 | 11 ·9 |
| 47 30 ·41 | 10 ·62 | 0 ·33 | 21 48 29 ·5 | 37 ·3 | 4 ·6 | 12 ·1 |
| 42 56 ·12 | 12 ·19 | 0 ·33 | 21 33 52 ·5 | 35 ·7 | 4 ·6 | 12 ·3 |
| 37 47 ·94 | 13 ·42 | 0 ·34 | 21 19 57 ·7 | 33 ·8 | 4 ·7 | 12 ·5 |
| 32 15 ·05 | 14 ·24 | 0 ·35 | 21 6 53 ·1 | 31 ·5 | 4 ·8 | 12 ·6 |
| [illegible] | {14 ·50 / 14 ·49} | {0 ·35 / 0 ·35} | {20 54 49 ·3 / 20 43 54 ·6} | {28 ·8 / 25 ·6} | {4 ·9 / 4 ·8} | {12 ·7 / 12 ·7} |
| 8 14 56 ·27 | 13 ·92 | 0 ·35 | 20 34 21 ·1 | 22 ·0 | 4 ·8 | 12 ·7 |
| 8 9 32 ·95 | 12 ·96 | 0 ·34 | 20 26 21 ·8 | 17 ·9 | 4 ·8 | 12 ·6 |
| 8 4 36 ·75 | 11 ·68 | 0 ·33 | 20 20 5 ·5 | 13 ·4 | 4 ·7 | 12 ·5 |
| 8 0 14 ·36 | 10 ·16 | 0 ·33 | 20 15 39 ·1 | 8 ·8 | 4 ·6 | 12 ·3 |
| 7 56 30 ·53 | — 8 ·49 | 0 ·33 | S. 20 13 6 ·0 | + 4 ·0 | 4 ·6 | 12 ·1 |

# JANUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Rad |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 27 10·56 | S. 20 12 33·3 | 0·1187929 | 21 44·3 | 200 47 39·5 | N. 2 45 40·8 | 9·8 |
| 2 | 16 32 21·02 | 20 26 2·8 | ·1206268 | 21 45·5 | 202 24 15·2 | 2 42 17·6 | ·8 |
| 3 | 16 37 32·51 | 20 38 58·5 | ·1224421 | 21 46·8 | 204 0 48·3 | 2 38 46·9 | ·8 |
| 4 | 16 42 45·01 | 20 51 19·9 | ·1242389 | 21 48·1 | 205 37 18·6 | 2 35 8·7 | ·8 |
| 5 | 16 47 58·47 | 21 3 6·4 | ·1260174 | 21 49·4 | 207 13 46·3 | 2 31 23·3 | ·8 |
| 6 | 16 53 12·86 | 21 14 17·3 | ·1277777 | 21 50·7 | 208 50 11·2 | 2 27 30·8 | ·8 |
| 7 | 16 58 28·14 | 21 24 52·2 | ·1295199 | 21 52·0 | 210 26 33·4 | 2 23 31·5 | ·8 |
| 8 | 17 3 44·28 | 21 34 50·4 | ·1312441 | 21 53·4 | 212 2 52·8 | 2 19 25·5 | ·8 |
| 9 | 17 9 1·23 | 21 44 11·6 | ·1329507 | 21 54·7 | 213 39 9·5 | 2 15 13·1 | ·8 |
| 10 | 17 14 18·94 | 21 52 55·2 | ·1346398 | 21 56·1 | 215 15 23·5 | 2 10 54·4 | ·8 |
| 11 | 17 19 37·36 | 22 1 0·7 | ·1363117 | 21 57·4 | 216 51 34·7 | 2 6 29·7 | ·8 |
| 12 | 17 24 56·46 | 22 8 27·8 | ·1379667 | 21 58·8 | 218 27 43·1 | 2 1 59·1 | ·8 |
| 13 | 17 30 16·17 | 22 15 16·1 | ·1396049 | 22 0·2 | 220 3 48·8 | 1 57 22·9 | ·8 |
| 14 | 17 35 36·46 | 22 21 25·2 | ·1412266 | 22 1·6 | 221 39 51·8 | 1 52 41·3 | ·8 |
| 15 | 17 40 57·26 | 22 26 54·7 | ·1428321 | 22 3·0 | 223 15 52·0 | 1 47 54·6 | ·8 |
| 16 | 17 46 18·54 | 22 31 44·4 | ·1444215 | 22 4·5 | 224 51 49·5 | 1 43 2·9 | ·8 |
| 17 | 17 51 40·23 | 22 35 53·9 | ·1459950 | 22 5·9 | 226 27 44·4 | 1 38 6·6 | ·8 |
| 18 | 17 57 2·29 | 22 39 23·1 | ·1475529 | 22 7·3 | 228 3 36·6 | 1 33 5·7 | ·8 |
| 19 | 18 2 24·66 | 22 42 11·6 | ·1490953 | 22 8·8 | 229 39 26·2 | 1 28 0·7 | ·8 |
| 20 | 18 7 47·29 | 22 44 19·3 | ·1506224 | 22 10·2 | 231 15 13·2 | 1 22 51·6 | ·8 |
| 21 | 18 13 10·13 | 22 45 46·1 | ·1521344 | 22 11·7 | 232 50 57·7 | 1 17 38·9 | ·8 |
| 22 | 18 18 33·12 | 22 46 31·8 | ·1536313 | 22 13·1 | 234 26 39·6 | 1 12 22·6 | ·8 |
| 23 | 18 23 56·21 | 22 46 36·3 | ·1551133 | 22 14·6 | 236 2 19·0 | 1 7 3·1 | ·8 |
| 24 | 18 29 19·34 | 22 45 59·5 | ·1565804 | 22 16·0 | 237 37 56·0 | 1 1 40·6 | ·8 |
| 25 | 18 34 42·45 | 22 44 41·5 | ·1580328 | 22 17·5 | 239 13 30·5 | 0 56 15·4 | ·8 |
| 26 | 18 40 5·48 | 22 42 42·1 | ·1594704 | 22 18·9 | 240 49 2·8 | 0 50 47·7 | ·8 |
| 27 | 18 45 28·39 | 22 40 1·4 | ·1608934 | 22 20·4 | 242 24 32·7 | 0 45 17·8 | ·8 |
| 28 | 18 50 51·12 | 22 36 39·5 | ·1623017 | 22 21·8 | 244 0 0·4 | 0 39 45·9 | ·8 |
| 29 | 18 56 13·61 | 22 32 36·4 | ·1636955 | 22 23·2 | 245 35 25·8 | 0 34 12·3 | ·8 |
| 30 | 19 1 35·80 | 22 27 52·3 | ·1650746 | 22 24·6 | 247 10 49·2 | 0 28 37·1 | ·8 |
| 31 | 19 6 57·64 | 22 22 27·4 | ·1664392 | 22 26·0 | 248 46 10·4 | 0 23 0·8 | ·8 |
| 32 | 19 12 19·07 | S. 22 16 21·9 | 0·1677893 | 22 27·4 | 250 21 29·6 | N. 0 17 23·4 | 9·8 |

# JANUARY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 31 51 ·72 | +12 ·96 | 0 ·44 | S. 20 24 47 ·9 | −33 ·2 | 6 ·2 | 6 ·5 |
| 37 3 ·38 | 13 ·01 | 0 ·44 | 20 37 47 ·5 | 31 ·8 | 6 ·2 | 6 ·5 |
| 42 16 ·06 | 13 ·05 | 0 ·44 | 20 50 12 ·8 | 30 ·3 | 6 ·2 | 6 ·4 |
| 47 29 ·72 | 13 ·09 | 0 ·44 | 21 2 3 ·2 | 28 ·9 | 6 ·2 | 6 ·4 |
| 52 44 ·31 | 13 ·13 | 0 ·44 | 21 13 18 ·0 | 27 ·4 | 6 ·2 | 6 ·4 |
| 57 59 ·79 | 13 ·16 | 0 ·44 | 21 23 56 ·7 | 25 ·9 | 6 ·2 | 6 ·4 |
| 3 16 ·15 | 13 ·20 | 0 ·44 | 21 33 58 ·8 | 24 ·3 | 6 ·1 | 6 ·3 |
| 8 33 ·33 | 13 ·23 | 0 ·44 | 21 43 23 ·8 | 22 ·8 | 6 ·1 | 6 ·3 |
| 13 51 ·27 | 13 ·26 | 0 ·44 | 21 52 11 ·2 | 21 ·2 | 6 ·1 | 6 ·3 |
| 19 9 ·93 | 13 ·29 | 0 ·44 | 22 0 20 ·5 | 19 ·6 | 6 ·1 | 6 ·3 |
| 24 29 ·28 | 13 ·32 | 0 ·44 | 22 7 51 ·3 | 18 ·0 | 6 ·1 | 6 ·3 |
| 29 49 ·25 | 13 ·34 | 0 ·43 | 22 14 43 ·2 | 16 ·4 | 6 ·0 | 6 ·2 |
| 35 9 ·80 | 13 ·37 | 0 ·43 | 22 20 56 ·0 | 14 ·7 | 6 ·0 | 6 ·2 |
| 40 30 ·87 | 13 ·39 | 0 ·43 | 22 26 29 ·1 | 13 ·1 | 6 ·0 | 6 ·2 |
| 45 52 ·43 | 13 ·41 | 0 ·43 | 22 31 22 ·4 | 11 ·4 | 6 ·0 | 6 ·2 |
| 51 14 ·41 | 13 ·42 | 0 ·43 | 22 35 35 ·4 | 9 ·7 | 6 ·0 | 6 ·2 |
| 56 36 ·76 | 13 ·44 | 0 ·43 | 22 39 8 ·0 | 8 ·0 | 5 ·9 | 6 ·1 |
| 1 59 ·43 | 13 ·45 | 0 ·43 | 22 41 59 ·9 | 6 ·3 | 5 ·9 | 6 ·1 |
| 7 22 ·36 | 13 ·46 | 0 ·43 | 22 44 10 ·9 | 4 ·6 | 5 ·9 | 6 ·1 |
| 12 45 ·51 | 13 ·47 | 0 ·43 | 22 45 41 ·0 | 2 ·9 | 5 ·8 | 6 ·0 |
| 18 8 ·82 | 13 ·47 | 0 ·43 | 22 46 29 ·8 | − 1 ·2 | 5 ·8 | 6 ·0 |
| 23 32 ·23 | 13 ·48 | 0 ·43 | 22 46 37 ·4 | + 0 ·5 | 5 ·8 | 6 ·0 |
| 28 55 ·68 | 13 ·48 | 0 ·43 | 22 46 3 ·6 | 2 ·3 | 5 ·8 | 6 ·0 |
| 34 19 ·11 | 13 ·48 | 0 ·42 | 22 44 48 ·5 | 4 ·0 | 5 ·8 | 6 ·0 |
| 39 42 ·47 | 13 ·47 | 0 ·42 | 22 42 51 ·9 | 5 ·7 | 5 ·7 | 5 ·9 |
| 45 5 ·72 | 13 ·47 | 0 ·42 | 22 40 14 ·0 | 7 ·4 | 5 ·7 | 5 ·9 |
| 50 28 ·79 | 13 ·46 | 0 ·42 | 22 36 54 ·8 | 9 ·2 | 5 ·7 | 5 ·9 |
| 55 51 ·62 | 13 ·45 | 0 ·41 | 22 32 54 ·3 | 10 ·9 | 5 ·7 | 5 ·9 |
| 1 14 ·15 | 13 ·44 | 0 ·41 | 22 28 12 ·6 | 12 ·6 | 5 ·7 | 5 ·9 |
| 6 36 ·34 | 13 ·42 | 0 ·40 | 22 22 50 ·1 | 14 ·3 | 5 ·6 | 5 ·8 |
| 11 58 ·12 | 13 ·40 | 0 ·40 | 22 16 46 ·9 | 16 ·0 | 5 ·6 | 5 ·8 |
| 17 19 ·42 | +13 ·38 | 0 ·40 | S. 22 10 3 ·3 | +17 ·7 | 5 ·6 | 5 ·8 |

# FEBRUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 19 12 19·07 | S. 22 16 21·9 | 0·1677893 | 22 27·4 | 250 21 29·6 | N. 0 17 23·4 | 9·860 |
| 2 | 19 17 40·03 | 22 9 36·0 | ·1691248 | 22 28·8 | 251 56 46·9 | 0 11 45·4 | ·860 |
| 3 | 19 23 0·47 | 22 2 9·9 | ·1704460 | 22 30·2 | 253 32 2·3 | 0 6 6·9 | ·860 |
| 4 | 19 28 20·35 | 21 54 4·0 | ·1717529 | 22 31·6 | 255 7 15·8 | N. 0 0 28·2 | ·861 |
| 5 | 19 33 39·61 | 21 45 18·5 | ·1730455 | 22 33·0 | 256 42 27·6 | S. 0 5 10·4 | ·861 |
| 6 | 19 38 58·21 | 21 35 53·8 | ·1743240 | 22 34·3 | 258 17 37·6 | 0 10 48·6 | ·861 |
| 7 | 19 44 16·09 | 21 25 50·2 | ·1755885 | 22 35·7 | 259 52 46·0 | 0 16 26·3 | ·861 |
| 8 | 19 49 33·21 | 21 15 8·2 | ·1768390 | 22 37·0 | 261 27 52·9 | 0 22 3·1 | ·861 |
| 9 | 19 54 49·53 | 21 3 48·1 | ·1780757 | 22 38·3 | 263 2 58·3 | 0 27 38·8 | ·861 |
| 10 | 20 0 5·01 | 20 51 50·4 | ·1792988 | 22 39·6 | 264 38 2·2 | 0 33 13·1 | ·861 |
| 11 | 20 5 19·61 | 20 39 15·5 | ·1805084 | 22 40·8 | 266 13 4·8 | 0 38 45·7 | ·861 |
| 12 | 20 10 33·30 | 20 26 4·0 | ·1817046 | 22 42·1 | 267 48 6·1 | 0 44 16·5 | ·861 |
| 13 | 20 15 46·05 | 20 12 16·4 | ·1828877 | 22 43·4 | 269 23 6·2 | 0 49 45·2 | ·861 |
| 14 | 20 20 57·83 | 19 57 53·2 | ·1840577 | 22 44·6 | 270 58 5·2 | 0 55 11·5 | ·861 |
| 15 | 20 26 8·61 | 19 42 54·8 | ·1852149 | 22 45·9 | 272 33 3·1 | 1 0 35·2 | ·861 |
| 16 | 20 31 18·36 | 19 27 22·0 | ·1863594 | 22 47·1 | 274 8 0·0 | 1 5 56·1 | ·861 |
| 17 | 20 36 27·08 | 19 11 15·2 | ·1874913 | 22 48·3 | 275 42 56·0 | 1 11 13·9 | ·861 |
| 18 | 20 41 34·73 | 18 54 35·0 | ·1886107 | 22 49·5 | 277 17 51·1 | 1 16 28·3 | ·861 |
| 19 | 20 46 41·31 | 18 37 22·0 | ·1897177 | 22 50·6 | 278 52 45·5 | 1 21 39·2 | ·861 |
| 20 | 20 51 46·81 | 18 19 36·8 | ·1908124 | 22 51·8 | 280 27 39·2 | 1 26 46·3 | ·861 |
| 21 | 20 56 51·22 | 18 1 20·0 | ·1918948 | 22 52·9 | 282 2 32·2 | 1 31 49·4 | ·861 |
| 22 | 21 1 54·52 | 17 42 32·3 | ·1929649 | 22 54·0 | 283 37 24·7 | 1 36 48·2 | ·861 |
| 23 | 21 6 56·72 | 17 23 14·3 | ·1940228 | 22 55·0 | 285 12 16·7 | 1 41 42·6 | ·861 |
| 24 | 21 11 57·80 | 17 3 26·7 | ·1950685 | 22 56·1 | 286 47 8·3 | 1 46 32·3 | ·861 |
| 25 | 21 16 57·78 | 16 43 10·1 | ·1961020 | 22 57·1 | 288 21 59·5 | 1 51 17·1 | ·861 |
| 26 | 21 21 56·64 | 16 22 25·2 | ·1971232 | 22 58·1 | 289 56 50·5 | 1 55 56·7 | ·861 |
| 27 | 21 26 54·40 | 16 1 12·7 | ·1981321 | 22 59·1 | 291 31 41·3 | 2 0 31·1 | ·861 |
| 28 | 21 31 51·05 | 15 39 33·3 | ·1991287 | 23 0·1 | 293 6 31·9 | 2 4 59·9 | ·861 |
| 29 | 21 36 46·61 | S. 15 17 27·7 | 0·2001129 | 23 1·1 | 294 41 22·4 | S. 2 9 23·0 | 9·862 |

# FEBRUARY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 9 17 19 ·42 | +13 ·38 | 0 ·40 | S. 22 10 3 ·3 | +17 ·7 | 5 ·6 | 5 ·8 |
| 9 22 40 ·20 | 13 ·36 | 0 ·40 | 22 2 39 ·3 | 19 ·4 | 5 ·6 | 5 ·8 |
| 9 28 0 ·42 | 13 ·33 | 0 ·40 | 21 54 35 ·4 | 21 ·0 | 5 ·6 | 5 ·8 |
| 9 33 20 ·03 | 13 ·30 | 0 ·40 | 21 45 51 ·8 | 22 ·7 | 5 ·6 | 5 ·8 |
| 9 38 38 ·97 | 13 ·27 | 0 ·39 | 21 36 29 ·0 | 24 ·3 | 5 ·5 | 5 ·7 |
| 9 43 57 ·20 | 13 ·24 | 0 ·39 | 21 26 27 ·2 | 25 ·9 | 5 ·5 | 5 ·7 |
| 9 49 14 ·66 | 13 ·21 | 0 ·39 | 21 15 46 ·8 | 27 ·5 | 5 ·5 | 5 ·7 |
| 9 54 31 ·32 | 13 ·18 | 0 ·39 | 21 4 28 ·3 | 29 ·1 | 5 ·5 | 5 ·7 |
| 9 59 47 ·14 | 13 ·14 | 0 ·39 | 20 52 32 ·1 | 30 ·6 | 5 ·5 | 5 ·7 |
| 0 5 2 ·08 | 13 ·10 | 0 ·39 | 20 39 58 ·6 | 32 ·2 | 5 ·5 | 5 ·7 |
| 0 10 16 ·10 | 13 ·06 | 0 ·39 | 20 26 48 ·4 | 33 ·7 | 5 ·5 | 5 ·7 |
| 0 15 29 ·18 | 13 ·02 | 0 ·38 | 20 13 2 ·0 | 35 ·2 | 5 ·4 | 5 ·6 |
| 0 20 41 ·28 | 12 ·98 | 0 ·38 | 19 58 40 ·0 | 36 ·7 | 5 ·4 | 5 ·6 |
| 0 25 52 ·38 | 12 ·94 | 0 ·38 | 19 43 42 ·6 | 38 ·1 | 5 ·4 | 5 ·6 |
| 0 31 2 ·45 | 12 ·90 | 0 ·38 | 19 28 10 ·8 | 39 ·5 | 5 ·4 | 5 ·6 |
| 0 36 11 ·48 | 12 ·86 | 0 ·38 | 19 12 4 ·9 | 40 ·9 | 5 ·4 | 5 ·6 |
| 0 41 19 ·43 | 12 ·81 | 0 ·38 | 18 55 25 ·6 | 42 ·3 | 5 ·4 | 5 ·6 |
| 0 46 26 ·31 | 12 ·77 | 0 ·37 | 18 38 13 ·3 | 43 ·7 | 5 ·3 | 5 ·5 |
| 0 51 32 ·11 | 12 ·72 | 0 ·37 | 18 20 28 ·8 | 45 ·0 | 5 ·3 | 5 ·5 |
| 0 56 36 ·81 | 12 ·68 | 0 ·37 | 18 2 12 ·7 | 46 ·3 | 5 ·3 | 5 ·5 |
| 1 1 40 ·40 | 12 ·63 | 0 ·37 | 17 43 25 ·6 | 47 ·6 | 5 ·3 | 5 ·5 |
| 1 6 42 ·88 | 12 ·58 | 0 ·37 | 17 24 8 ·1 | 48 ·9 | 5 ·3 | 5 ·5 |
| 1 11 44 ·24 | 12 ·53 | 0 ·37 | 17 4 20 ·9 | 50 ·1 | 5 ·3 | 5 ·5 |
| 1 16 44 ·49 | 12 ·49 | 0 ·37 | 16 44 4 ·7 | 51 ·3 | 5 ·3 | 5 ·5 |
| 1 21 43 ·61 | 12 ·44 | 0 ·36 | 16 23 20 ·1 | 52 ·4 | 5 ·2 | 5 ·4 |
| 1 26 41 ·63 | 12 ·40 | 0 ·36 | 16 2 7 ·9 | 53 ·6 | 5 ·2 | 5 ·4 |
| 1 31 38 ·54 | 12 ·35 | 0 ·36 | 15 40 28 ·7 | 54 ·7 | 5 ·2 | 5 ·4 |
| 1 36 34 ·35 | 12 ·31 | 0 ·36 | 15 18 23 ·3 | 55 ·8 | 5 ·2 | 5 ·4 |
| 1 41 29 ·05 | +12 ·26 | 0 ·36 | S. 14 55 52 ·4 | +56 ·8 | 5 ·2 | 5 ·4 |

# MARCH, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 36 46·61 | S. 15 17 27·7 | 0·2001129 | 23 1·1 | 294 41 22·4 | S. 2 9 23·0 | 9·8621 |
| 2 | 21 41 41·07 | 14 54 56·6 | ·2010846 | 23 2·1 | 296 16 12·9 | 2 13 40·1 | ·8622 |
| 3 | 21 46 34·46 | 14 32 0·8 | ·2020440 | 23 3·0 | 297 51 3·5 | 2 17 51·2 | ·8622 |
| 4 | 21 51 26·77 | 14 8 40·9 | ·2029910 | 23 3·9 | 299 25 54·2 | 2 21 55·9 | ·8622 |
| 5 | 21 56 18·02 | 13 44 57·7 | ·2039256 | 23 4·8 | 301 0 45·1 | 2 25 54·1 | ·8622 |
| 6 | 22 1 8·22 | 13 20 51·9 | ·2048478 | 23 5·6 | 302 35 36·2 | 2 29 45·7 | ·8622 |
| 7 | 22 5 57·40 | 12 56 24·4 | ·2057575 | 23 6·5 | 304 10 27·6 | 2 33 30·4 | ·8622 |
| 8 | 22 10 45·55 | 12 31 35·7 | ·2066549 | 23 7·3 | 305 45 19·4 | 2 37 8·1 | ·8622 |
| 9 | 22 15 32·71 | 12 6 26·7 | ·2075399 | 23 8·2 | 307 20 11·5 | 2 40 38·7 | ·8622 |
| 10 | 22 20 18·90 | 11 40 58·1 | ·2084125 | 23 9·0 | 308 55 4·1 | 2 44 1·9 | ·8622 |
| 11 | 22 25 4·12 | 11 15 10·7 | ·2092729 | 23 9·8 | 310 29 57·2 | 2 47 17·6 | ·8622 |
| 12 | 22 29 48·42 | 10 49 5·1 | ·2101211 | 23 10·6 | 312 4 50·9 | 2 50 25·7 | ·8622 |
| 13 | 22 34 31·81 | 10 22 42·1 | ·2109572 | 23 11·4 | 313 39 45·1 | 2 53 26·0 | ·8622 |
| 14 | 22 39 14·31 | 9 56 2·5 | ·2117813 | 23 12·2 | 315 14 40·0 | 2 56 18·4 | ·8622 |
| 15 | 22 43 55·96 | 9 29 7·0 | ·2125934 | 23 12·9 | 316 49 35·6 | 2 59 2·7 | ·8622 |
| 16 | 22 48 36·79 | 9 1 56·3 | ·2133936 | 23 13·6 | 318 24 31·9 | 3 1 38·9 | ·8622 |
| 17 | 22 53 16·83 | 8 34 31·1 | ·2141820 | 23 14·3 | 319 59 29·0 | 3 4 6·8 | ·8622 |
| 18 | 22 57 56·11 | 8 6 52·2 | ·2149587 | 23 15·0 | 321 34 26·9 | 3 6 26·3 | ·8622 |
| 19 | 23 2 34·67 | 7 39 0·2 | ·2157237 | 23 15·7 | 323 9 25·6 | 3 8 37·2 | ·8622 |
| 20 | 23 7 12·53 | 7 10 55·9 | ·2164771 | 23 16·4 | 324 44 25·3 | 3 10 39·6 | ·8622 |
| 21 | 23 11 49·75 | 6 42 39·9 | ·2172189 | 23 17·0 | 326 19 25·9 | 3 12 33·3 | ·8622 |
| 22 | 23 16 26·36 | 6 14 13·1 | ·2179492 | 23 17·7 | 327 54 27·5 | 3 14 18·1 | ·8622 |
| 23 | 23 21 2·39 | 5 45 36·0 | ·2186679 | 23 18·3 | 329 29 30·1 | 3 15 54·1 | ·8622 |
| 24 | 23 25 37·88 | 5 16 49·4 | ·2193749 | 23 19·0 | 331 4 33·7 | 3 17 21·2 | ·8620 |
| 25 | 23 30 12·87 | 4 47 54·1 | ·2200703 | 23 19·6 | 332 39 38·4 | 3 18 39·2 | ·8620 |
| 26 | 23 34 47·40 | 4 18 50·7 | ·2207539 | 23 20·3 | 334 14 44·1 | 3 19 48·1 | ·8620 |
| 27 | 23 39 21·51 | 3 49 39·9 | ·2214258 | 23 20·9 | 335 49 51·0 | 3 20 47·9 | ·8619 |
| 28 | 23 43 55·24 | 3 20 22·5 | ·2220858 | 23 21·5 | 337 24 59·0 | 3 21 38·5 | ·8619 |
| 29 | 23 48 28·64 | 2 50 59·2 | ·2227339 | 23 22·1 | 339 0 8·1 | 3 22 19·9 | ·8619 |
| 30 | 23 53 1·74 | 2 21 30·6 | ·2233699 | 23 22·7 | 340 35 18·4 | 3 22 51·9 | ·8618 |
| 31 | 23 57 34·57 | 1 51 57·5 | ·2239938 | 23 23·3 | 342 10 29·9 | 3 23 14·7 | ·8618 |
| 32 | 0 2 7·19 | S. 1 22 20·7 | 0·2246054 | 23 23·9 | 343 45 42·7 | S. 3 23 28·2 | 9·8617 |

# MARCH, 1845.

At Transit over the Meridian of Greenwich.

| *arent* ight nsion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 29 ·05 | +12 ·26 | 0 ·36 | S. 14 55 52 ·4 | +56 ·8 | 5 ·2 | 5 ·4 |
| 22 ·68 | 12 ·21 | 0 ·36 | 14 32 56 ·6 | 57 ·8 | 5 ·2 | 5 ·4 |
| 15 ·22 | 12 ·17 | 0 ·36 | 14 9 36 ·7 | 58 ·8 | 5 ·2 | 5 ·4 |
| 6 ·70 | 12 ·12 | 0 ·36 | 13 45 53 ·5 | 59 ·8 | 5 ·2 | 5 ·4 |
| 57 ·12 | 12 ·08 | 0 ·36 | 13 21 47 ·7 | 60 ·7 | 5 ·2 | 5 ·4 |
| 46 ·52 | 12 ·03 | 0 ·35 | 12 57 20 ·1 | 61 ·6 | 5 ·1 | 5 ·3 |
| 34 ·88 | 11 ·99 | 0 ·35 | 12 32 31 ·3 | 62 ·5 | 5 ·1 | 5 ·3 |
| 22 ·24 | 11 ·95 | 0 ·35 | 12 7 22 ·2 | 63 ·3 | 5 ·1 | 5 ·3 |
| 8 ·63 | 11 ·91 | 0 ·35 | 11 41 53 ·4 | 64 ·1 | 5 ·1 | 5 ·3 |
| 54 ·05 | 11 ·87 | 0 ·35 | 11 16 5 ·8 | 64 ·9 | 5 ·1 | 5 ·3 |
| 38 ·54 | 11 ·83 | 0 ·35 | 10 50 0 ·0 | 65 ·6 | 5 ·1 | 5 ·3 |
| 22 ·11 | 11 ·79 | 0 ·35 | 10 23 36 ·7 | 66 ·3 | 5 ·1 | 5 ·3 |
| 4 ·78 | 11 ·76 | 0 ·35 | 9 56 56 ·8 | 67 ·0 | 5 ·1 | 5 ·3 |
| 46 ·61 | 11 ·72 | 0 ·35 | 9 30 1 ·0 | 67 ·7 | 5 ·1 | 5 ·3 |
| 27 ·61 | 11 ·69 | 0 ·34 | 9 2 49 ·9 | 68 ·3 | 5 ·0 | 5 ·2 |
| 7 ·82 | 11 ·66 | 0 ·34 | 8 35 24 ·4 | 68 ·9 | 5 ·0 | 5 ·2 |
| 47 ·26 | 11 ·63 | 0 ·34 | 8 7 45 ·1 | 69 ·4 | 5 ·0 | 5 ·2 |
| 25 ·98 | 11 ·60 | 0 ·34 | 7 39 52 ·7 | 69 ·9 | 5 ·0 | 5 ·2 |
| 3 ·99 | 11 ·57 | 0 ·34 | 7 11 47 ·9 | 70 ·4 | 5 ·0 | 5 ·2 |
| 41 ·36 | 11 ·54 | 0 ·34 | 6 43 31 ·5 | 70 ·9 | 5 ·0 | 5 ·2 |
| 18 ·12 | 11 ·52 | 0 ·34 | 6 15 4 ·2 | 71 ·4 | 5 ·0 | 5 ·2 |
| 54 ·29 | 11 ·49 | 0 ·34 | 5 46 26 ·6 | 71 ·8 | 5 ·0 | 5 ·2 |
| 29 ·92 | 11 ·47 | 0 ·34 | 5 17 39 ·4 | 72 ·1 | 5 ·0 | 5 ·2 |
| 5 ·05 | 11 ·45 | 0 ·34 | 4 48 43 ·6 | 72 ·5 | 5 ·0 | 5 ·2 |
| 39 ·71 | 11 ·44 | 0 ·34 | 4 19 39 ·7 | 72 ·8 | 5 ·0 | 5 ·2 |
| 13 ·95 | 11 ·42 | 0 ·34 | 3 50 28 ·4 | 73 ·1 | 5 ·0 | 5 ·2 |
| 47 ·81 | 11 ·40 | 0 ·33 | 3 21 10 ·4 | 73 ·4 | 4 ·9 | 5 ·1 |
| 21 ·33 | 11 ·39 | 0 ·33 | 2 51 46 ·5 | 73 ·6 | 4 ·9 | 5 ·1 |
| 54 ·55 | 11 ·38 | 0 ·33 | 2 22 17 ·3 | 73 ·8 | 4 ·9 | 5 ·1 |
| 27 ·50 | 11 ·37 | 0 ·33 | 1 52 43 ·5 | 74 ·0 | 4 ·9 | 5 ·1 |
| 0 ·24 | 11 ·36 | 0 ·33 | 1 23 6 ·0 | 74 ·1 | 4 ·9 | 5 ·1 |
| 32 ·79 | +11 ·35 | 0 ·33 | S. 0 53 25 ·5 | +74 ·2 | 4 ·9 | 5 ·1 |

# APRIL, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | No |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 2 7·19 | S. 1 22 20·7 | 0·2246054 | 23 23·9 | 343 45 42·7 | S. 3 23 28·2 | 9·861 |
| 2 | 0 6 39·62 | 0 52 40·8 | ·2252047 | 23 24·5 | 345 20 56·6 | 3 23 32·3 | ·861 |
| 3 | 0 11 11·91 | S. 0 22 58·6 | ·2257916 | 23 25·1 | 346 56 11·9 | 3 23 27·0 | ·861 |
| 4 | 0 15 44·10 | N. 0 6 45·3 | ·2263661 | 23 25·7 | 348 31 28·4 | 3 23 12·4 | ·861 |
| 5 | 0 20 16·23 | 0 36 30·0 | ·2269280 | 23 26·3 | 350 6 46·2 | 3 22 48·5 | ·861 |
| 6 | 0 24 48·34 | 1 6 14·9 | ·2274774 | 23 26·9 | 351 42 5·4 | 3 22 15·2 | ·861 |
| 7 | 0 29 20·47 | 1 35 59·3 | ·2280142 | 23 27·5 | 353 17 25·8 | 3 21 32·6 | ·861 |
| 8 | 0 33 52·65 | 2 5 42·5 | ·2285383 | 23 28·1 | 354 52 47·7 | 3 20 40·7 | ·861 |
| 9 | 0 38 24·93 | 2 35 23·6 | ·2290499 | 23 28·7 | 356 28 10·9 | 3 19 39·5 | ·861 |
| 10 | 0 42 57·34 | 3 5 2·0 | ·2295488 | 23 29·3 | 358 3 35·4 | 3 18 29·2 | ·86 |
| 11 | 0 47 29·92 | 3 34 37·0 | ·2300351 | 23 29·9 | 359 39 1·4 | 3 17 9·6 | ·86 |
| 12 | 0 52 2·71 | 4 4 7·9 | ·2305088 | 23 30·5 | 1 14 28·7 | 3 15 40·9 | ·86 |
| 13 | 0 56 35·75 | 4 33 33·9 | ·2309700 | 23 31·1 | 2 49 57·5 | 3 14 3·2 | ·86 |
| 14 | 1 1 9·09 | 5 2 54·4 | ·2314187 | 23 31·7 | 4 25 27·7 | 3 12 16·5 | ·86 |
| 15 | 1 5 42·75 | 5 32 8·5 | ·2318549 | 23 32·3 | 6 0 59·2 | 3 10 20·8 | ·86 |
| 16 | 1 10 16·79 | 6 1 15·8 | ·2322786 | 23 33·0 | 7 36 32·3 | 3 8 16·3 | ·86 |
| 17 | 1 14 51·23 | 6 30 15·3 | ·2326899 | 23 33·6 | 9 12 6·7 | 3 6 3·1 | ·86 |
| 18 | 1 19 26·12 | 6 59 6·5 | ·2330888 | 23 34·2 | 10 47 42·7 | 3 3 41·2 | ·86 |
| 19 | 1 24 1·50 | 7 27 48·5 | ·2334752 | 23 34·9 | 12 23 20·1 | 3 1 10·7 | ·86 |
| 20 | 1 28 37·41 | 7 56 20·8 | ·2338491 | 23 35·5 | 13 58 59·0 | 2 58 31·8 | ·86 |
| 21 | 1 33 13·90 | 8 24 42·5 | ·2342106 | 23 36·2 | 15 34 39·4 | 2 55 44·6 | ·86 |
| 22 | 1 37 51·00 | 8 52 53·0 | ·2345596 | 23 36·9 | 17 10 21·3 | 2 52 49·1 | ·86 |
| 23 | 1 42 28·75 | 9 20 51·5 | ·2348960 | 23 37·6 | 18 46 4·7 | 2 49 45·6 | ·86 |
| 24 | 1 47 7·19 | 9 48 37·4 | ·2352198 | 23 38·3 | 20 21 49·7 | 2 46 34·1 | ·86 |
| 25 | 1 51 46·34 | 10 16 9·8 | ·2355308 | 23 39·0 | 21 57 36·2 | 2 43 14·8 | ·86 |
| 26 | 1 56 26·25 | 10 43 28·1 | ·2358291 | 23 39·8 | 23 33 24·2 | 2 39 47·8 | ·86 |
| 27 | 2 1 6·94 | 11 10 31·6 | ·2361144 | 23 40·5 | 25 9 13·8 | 2 36 13·3 | ·86 |
| 28 | 2 5 48·46 | 11 37 19·5 | ·2363866 | 23 41·3 | 26 45 5·0 | 2 32 31·4 | ·85 |
| 29 | 2 10 30·82 | 12 3 51·0 | ·2366457 | 23 42·1 | 28 20 57·7 | 2 28 42·4 | ·85 |
| 30 | 2 15 14·07 | 12 30 5·4 | ·2368914 | 23 42·9 | 29 56 52·0 | 2 24 46·3 | ·85 |
| 31 | 2 19 58·23 | N. 12 56 2·0 | 0·2371237 | 23 43·7 | 31 32 47·9 | S. 2 20 43·4 | 9·85 |

# APRIL, 1845.

At Transit over the Meridian of Greenwich.

| *arent* ight nsion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 32 ·79 | +11 ·35 | 0 ·33 | S. 0 53 25 ·5 | +74 ·2 | 4 ·9 | 5 ·1 |
| 5 ·19 | 11 ·35 | 0 ·33 | S. 0 23 42 ·6 | 74 ·3 | 4 ·9 | 5 ·1 |
| 37 ·50 | 11 ·34 | 0 ·33 | N. 0 6 2 ·0 | 74 ·4 | 4 ·9 | 5 ·1 |
| 9 ·74 | 11 ·34 | 0 ·33 | 0 35 47 ·4 | 74 ·4 | 4 ·9 | 5 ·1 |
| 41 ·97 | 11 ·34 | 0 ·33 | 1 5 33 ·0 | 74 ·4 | 4 ·9 | 5 ·1 |
| 14 ·21 | 11 ·34 | 0 ·33 | 1 35 18 ·2 | 74 ·4 | 4 ·9 | 5 ·1 |
| 46 ·50 | 11 ·35 | 0 ·33 | 2 5 2 ·2 | 74 ·3 | 4 ·9 | 5 ·1 |
| 18 ·89 | 11 ·35 | 0 ·33 | 2 34 44 ·1 | 74 ·2 | 4 ·9 | 5 ·1 |
| 51 ·41 | 11 ·36 | 0 ·33 | 3 4 23 ·3 | 74 ·1 | 4 ·9 | 5 ·1 |
| 24 ·10 | 11 ·37 | 0 ·33 | 3 33 59 ·1 | 73 ·9 | 4 ·9 | 5 ·1 |
| 57 ·00 | 11 ·38 | 0 ·33 | 4 3 30 ·9 | 73 ·7 | 4 ·9 | 5 ·1 |
| 30 ·15 | 11 ·39 | 0 ·33 | 4 32 57 ·8 | 73 ·5 | 4 ·9 | 5 ·1 |
| 3 ·60 | 11 ·40 | 0 ·33 | 5 2 19 ·1 | 73 ·3 | 4 ·9 | 5 ·1 |
| 37 ·37 | 11 ·41 | 0 ·32 | 5 31 34 ·1 | 73 ·0 | 4 ·8 | 5 ·0 |
| 11 ·52 | 11 ·43 | 0 ·32 | 6 0 42 ·3 | 72 ·7 | 4 ·8 | 5 ·0 |
| 46 ·07 | 11 ·45 | 0 ·32 | 6 29 42 ·7 | 72 ·4 | 4 ·8 | 5 ·0 |
| 21 ·07 | 11 ·47 | 0 ·32 | 6 58 34 ·8 | 72 ·0 | 4 ·8 | 5 ·0 |
| 56 ·57 | 11 ·49 | 0 ·32 | 7 27 17 ·8 | 71 ·6 | 4 ·8 | 5 ·0 |
| 32 ·60 | 11 ·52 | 0 ·32 | 7 55 51 ·0 | 71 ·1 | 4 ·8 | 5 ·0 |
| 9 ·20 | 11 ·54 | 0 ·32 | 8 24 13 ·7 | 70 ·7 | 4 ·8 | 5 ·0 |
| 46 ·42 | 11 ·57 | 0 ·32 | 8 52 25 ·2 | 70 ·2 | 4 ·8 | 5 ·0 |
| 24 ·29 | 11 ·59 | 0 ·32 | 9 20 24 ·7 | 69 ·6 | 4 ·8 | 5 ·0 |
| 2 ·85 | 11 ·62 | 0 ·32 | 9 48 11 ·6 | 69 ·1 | 4 ·8 | 5 ·0 |
| 42 ·13 | 11 ·65 | 0 ·32 | 10 15 45 ·0 | 68 ·5 | 4 ·8 | 5 ·0 |
| 22 ·17 | 11 ·68 | 0 ·32 | 10 43 4 ·3 | 68 ·0 | 4 ·8 | 5 ·0 |
| 2 ·99 | 11 ·72 | 0 ·33 | 11 10 8 ·9 | 67 ·4 | 4 ·8 | 5 ·0 |
| 44 ·64 | 11 ·75 | 0 ·33 | 11 36 57 ·8 | 66 ·7 | 4 ·8 | 5 ·0 |
| 27 ·14 | 11 ·79 | 0 ·33 | 12 3 30 ·4 | 66 ·0 | 4 ·8 | 5 ·0 |
| 10 ·53 | 11 ·83 | 0 ·33 | 12 29 45 ·9 | 65 ·3 | 4 ·8 | 5 ·0 |
| 54 ·84 | 11 ·87 | 0 ·33 | 12 55 43 ·6 | 64 ·5 | 4 ·8 | 5 ·0 |
| 40 ·08 | +11 ·91 | 0 ·33 | N. 13 21 22 ·7 | +63 ·7 | 4 ·8 | 5 ·0 |

VENUS

MAY, 1845.

MEAN TIME.

| Day of the Month. | Apparent Right Ascension | Geocentric Apparent Right Ascension | Geocentric Apparent Declination | Geocentric Log. of Dist. from the Earth | Meridian Passage | Heliocentric Longitude | Heliocentric Latitude | L Ra |
|---|---|---|---|---|---|---|---|---|
| | Noon | Noon | Noon | Noon | | Noon | Noon | |
| | h m | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 2 | 2 19 38·23 | N.12 36 2·0 | ·2371237 | 23 43·7 | 31 32 47·9 | S.2 20 43·4 | 9·8 |
| 2 | 0 | 2 24 43·32 | 13 21 40·1 | ·2373425 | 23 44·5 | 33 8 45·4 | 2 16 33·9 | ·8 |
| 3 | 0 | 2 29 29·37 | 13 46 38·8 | ·2375477 | 23 45·3 | 34 44 44·5 | 2 12 17·8 | ·8 |
| 4 | 0 | 2 34 16·41 | 14 11 37·5 | ·2377392 | 23 46·2 | 36 20 45·2 | 2 7 55·5 | ·8 |
| 5 | | 2 39 4·43 | 14 36 35·3 | ·2379168 | 23 47·1 | 37 56 47·6 | 2 3 27·1 | ·8 |
| 6 | | 2 43 53·51 | 15 0 51·6 | ·2380806 | 23 48·0 | 39 32 51·6 | 1 58 52·9 | ·8 |
| 7 | | 2 48 43·61 | 15 24 45·6 | ·2382305 | 23 48·9 | 41 8 57·3 | 1 54 12·9 | ·8 |
| 8 | | 2 53 34·77 | 15 48 16·5 | ·2383663 | 23 49·8 | 42 45 4·6 | 1 49 27·5 | ·8 |
| 9 | | 2 58 26·99 | 16 11 23·7 | ·2384881 | 23 50·8 | 44 21 13·6 | 1 44 36·8 | ·8 |
| 10 | 3 3 20·30 | | 16 34 6·3 | ·2385959 | 23 51·7 | 45 57 24·3 | 1 39 41·2 | ·8 |
| 11 | 3 8 14·69 | | 16 56 23·6 | ·2386896 | 23 52·7 | 47 33 36·7 | 1 34 40·7 | ·8 |
| 12 | 3 13 10·19 | | 17 18 15·0 | ·2387693 | 23 53·7 | 49 9 50·8 | 1 29 35·7 | ·8 |
| 13 | 3 18 6·79 | | 17 39 39·6 | ·2388349 | 23 54·8 | 50 46 6·7 | 1 24 26·3 | ·8 |
| 14 | 3 23 4·31 | | 18 0 36·8 | ·2388865 | 23 55·8 | 52 22 24·3 | 1 19 12·9 | ·8 |
| 15 | 3 28 3·35 | | 18 21 5·9 | ·2389242 | 23 56·9 | 53 58 43·6 | 1 13 55·6 | ·8 |
| 16 | 3 33 3·31 | | 18 41 6·1 | ·2389479 | 23 57·9 | 55 35 4·7 | 1 8 34·7 | ·8 |
| 17 | 3 38 4·39 | | 19 0 36·8 | ·2389577 | 23 59·0 | 57 11 27·6 | 1 3 10·5 | ·8 |
| 18 | 3 43 6·58 | | 19 19 37·2 | ·2389535 | * * | 58 47 52·2 | 0 57 43·2 | ·8 |
| 19 | 3 48 9·89 | | 19 38 6·8 | ·2389354 | 0 0·1 | 60 24 18·6 | 0 52 13·0 | ·8 |
| 20 | 3 53 14·31 | | 19 56 4·8 | ·2389032 | 0 1·2 | 62 0 46·8 | 0 46 40·2 | ·8 |
| 21 | 3 58 19·84 | | 20 13 30·6 | ·2388571 | 0 2·4 | 63 37 16·8 | 0 41 5·2 | ·8 |
| 22 | 4 3 26·45 | | 20 30 23·4 | ·2387969 | 0 3·6 | 65 13 48·6 | 0 35 28·0 | ·8 |
| 23 | 4 8 34·15 | | 20 46 42·7 | ·2387226 | 0 4·8 | 66 50 22·2 | 0 29 49·1 | ·8 |
| 24 | 4 13 42·91 | | 21 2 27·7 | ·2386342 | 0 6·0 | 68 26 57·6 | 0 24 8·6 | ·8 |
| 25 | 4 18 52·72 | | 21 17 38·0 | ·2385316 | 0 7·2 | 70 3 34·7 | 0 18 26·9 | ·8 |
| 26 | 4 24 3·56 | | 21 32 12·8 | ·2384146 | 0 8·5 | 71 40 13·7 | 0 12 44·2 | ·8 |
| 27 | 4 29 15·40 | | 21 46 11·7 | ·2382832 | 0 9·7 | 73 16 54·5 | 0 7 0·8 | ·8 |
| 28 | 4 34 28·21 | | 21 59 34·1 | ·2381371 | 0 11·0 | 74 53 37·0 | S.0 1 16·9 | ·8 |
| 29 | 4 39 41·97 | | 22 12 19·4 | ·2379763 | 0 12·2 | 76 30 21·4 | N.0 4 27·1 | ·8 |
| 30 | 4 44 56·64 | | 22 24 27·1 | ·2378008 | 0 13·5 | 78 7 7·6 | 0 10 11·1 | ·8 |
| 31 | 4 50 12·19 | | 22 35 56·6 | ·2376103 | 0 14·8 | 79 43 55·6 | 0 15 54·6 | ·8 |
| | 4 33 28·58 | | N.22 46 47·4 | 0·2374049 | 0 16·1 | 81 20 45·4 | N.0 21 37·5 | 9·8 |

# MAY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 24 40 ·08 | +11 ·91 | 0 ·33 | N.13 21 22 ·7 | +63 ·7 | 4 ·8 | 5 ·0 |
| 2 29 26 ·28 | 11 ·95 | 0 ·33 | 13 46 42 ·5 | 62 ·9 | 4 ·8 | 5 ·0 |
| 2 34 13 ·48 | 11 ·99 | 0 ·33 | 14 11 42 ·3 | 62 ·1 | 4 ·8 | 5 ·0 |
| 2 39 1 ·68 | 12 ·03 | 0 ·33 | 14 36 21 ·2 | 61 ·2 | 4 ·8 | 5 ·0 |
| 2 43 50 ·91 | 12 ·07 | 0 ·33 | 15 0 38 ·6 | 60 ·3 | 4 ·8 | 5 ·0 |
| 2 48 41 ·19 | 12 ·11 | 0 ·33 | 15 24 33 ·7 | 59 ·3 | 4 ·8 | 5 ·0 |
| 2 53 32 ·52 | 12 ·16 | 0 ·33 | 15 48 5 ·7 | 58 ·3 | 4 ·8 | 5 ·0 |
| 2 58 24 ·92 | 12 ·20 | 0 ·33 | 16 11 14 ·0 | 57 ·3 | 4 ·8 | 5 ·0 |
| 3 3 18 ·41 | 12 ·25 | 0 ·33 | 16 33 57 ·6 | 56 ·3 | 4 ·8 | 5 ·0 |
| 3 8 12 ·99 | 12 ·29 | 0 ·33 | 16 56 15 ·9 | 55 ·2 | 4 ·8 | 5 ·0 |
| 3 13 8 ·69 | 12 ·34 | 0 ·33 | 17 18 8 ·4 | 54 ·1 | 4 ·8 | 5 ·0 |
| 3 18 5 ·49 | 12 ·39 | 0 ·33 | 17 39 34 ·0 | 53 ·0 | 4 ·7 | 4 ·9 |
| 3 23 3 ·42 | 12 ·44 | 0 ·33 | 18 0 32 ·2 | 51 ·8 | 4 ·7 | 4 ·9 |
| 3 28 2 ·47 | 12 ·49 | 0 ·33 | 18 21 2 ·3 | 50 ·6 | 4 ·7 | 4 ·9 |
| 3 33 2 ·65 | 12 ·53 | 0 ·33 | 18 41 3 ·5 | 49 ·4 | 4 ·7 | 4 ·9 |
| 3 38 3 ·95 | 12 ·58 | 0 ·33 | 19 0 35 ·1 | 48 ·2 | 4 ·7 | 4 ·9 |
| 3 43 6 ·37 | 12 ·62 | 0 ·33 | 19 19 36 ·4 | 46 ·9 | 4 ·7 | 4 ·9 |
| * * * | * | * | * * * | * | * | * |
| 3 48 9 ·91 | 12 ·67 | 0 ·34 | 19 38 6 ·9 | 45 ·6 | 4 ·7 | 4 ·9 |
| 3 53 14 ·57 | 12 ·71 | 0 ·34 | 19 56 5 ·7 | 44 ·3 | 4 ·7 | 4 ·9 |
| 3 58 20 ·35 | 12 ·76 | 0 ·34 | 20 13 32 ·3 | 42 ·9 | 4 ·7 | 4 ·9 |
| 4 3 27 ·21 | 12 ·80 | 0 ·34 | 20 30 25 ·8 | 41 ·5 | 4 ·7 | 4 ·9 |
| 4 8 35 ·17 | 12 ·85 | 0 ·34 | 20 46 45 ·8 | 40 ·1 | 4 ·8 | 5 ·0 |
| 4 13 44 ·19 | 12 ·90 | 0 ·34 | 21 2 31 ·5 | 38 ·7 | 4 ·8 | 5 ·0 |
| 4 18 54 ·27 | 12 ·94 | 0 ·34 | 21 17 42 ·5 | 37 ·2 | 4 ·8 | 5 ·0 |
| 4 24 5 ·38 | 12 ·99 | 0 ·34 | 21 32 17 ·7 | 35 ·7 | 4 ·8 | 5 ·0 |
| 4 29 17 ·50 | 13 ·03 | 0 ·34 | 21 46 17 ·2 | 34 ·2 | 4 ·8 | 5 ·0 |
| 4 34 30 ·59 | 13 ·07 | 0 ·35 | 21 59 40 ·1 | 32 ·7 | 4 ·8 | 5 ·0 |
| 4 39 44 ·64 | 13 ·10 | 0 ·35 | 22 12 25 ·8 | 31 ·1 | 4 ·8 | 5 ·0 |
| 4 44 59 ·60 | 13 ·14 | 0 ·35 | 22 24 33 ·8 | 29 ·5 | 4 ·8 | 5 ·0 |
| 4 50 15 ·45 | 13 ·18 | 0 ·35 | 22 36 3 ·5 | 27 ·9 | 4 ·8 | 5 ·0 |
| 4 55 32 ·14 | +13 ·21 | 0 ·35 | N.22 46 54 ·5 | +26 ·3 | 4 ·8 | 5 ·0 |

# JUNE, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | Noo |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 4 55 28·58 | N.22 46 47·4 | 0·2374049 | 0 16·1 | 81 20 45·4 | N.0 21 37·5 | 9·857 |
| 2 | 5 0 45·77 | 22 56 59·0 | ·2371844 | 0 17·5 | 82 57 37·0 | 0 27 19·5 | ·857 |
| 3 | 5 6 3·72 | 23 6 31·1 | ·2369487 | 0 18·8 | 84 34 30·4 | 0 33 0·2 | ·857 |
| 4 | 5 11 22·37 | 23 15 23·1 | ·2366978 | 0 20·2 | 86 11 25·5 | 0 38 39·5 | ·857 |
| 5 | 5 16 41·69 | 23 23 34·8 | ·2364315 | 0 21·6 | 87 48 22·4 | 0 44 17·0 | ·857 |
| 6 | 5 22 1·61 | 23 31 5·7 | ·2361499 | 0 23·0 | 89 25 20·9 | 0 49 52·5 | ·857 |
| 7 | 5 27 22·09 | 23 37 55·5 | ·2358529 | 0 24·4 | 91 2 21·2 | 0 55 25·7 | ·857 |
| 8 | 5 32 43·07 | 23 44 3·8 | ·2355404 | 0 25·8 | 92 39 23·2 | 1 0 56·3 | ·856 |
| 9 | 5 38 4·50 | 23 49 30·4 | ·2352124 | 0 27·2 | 94 16 26·8 | 1 6 24·1 | ·856 |
| 10 | 5 43 26·31 | 23 54 15·0 | ·2348690 | 0 28·7 | 95 53 32·0 | 1 11 48·8 | ·856 |
| 11 | 5 48 48·45 | 23 58 17·4 | ·2345102 | 0 30·1 | 97 30 38·9 | 1 17 10·1 | ·856 |
| 12 | 5 54 10·87 | 24 1 37·4 | ·2341361 | 0 31·5 | 99 7 47·3 | 1 22 27·8 | ·856 |
| 13 | 5 59 33·50 | 24 4 14·8 | ·2337466 | 0 33·0 | 100 44 57·3 | 1 27 41·6 | ·856 |
| 14 | 6 4 56·29 | 24 6 9·5 | ·2333417 | 0 34·4 | 102 22 8·8 | 1 32 51·2 | ·856 |
| 15 | 6 10 19·18 | 24 7 21·4 | ·2329216 | 0 35·9 | 103 59 21·8 | 1 37 56·5 | ·856 |
| 16 | 6 15 42·10 | 24 7 50·4 | ·2324862 | 0 37·3 | 105 36 36·3 | 1 42 57·1 | ·856 |
| 17 | 6 21 5·00 | 24 7 36·5 | ·2320356 | 0 38·8 | 107 13 52·3 | 1 47 52·8 | ·856 |
| 18 | 6 26 27·83 | 24 6 39·5 | ·2315699 | 0 40·2 | 108 51 9·6 | 1 52 43·4 | ·856 |
| 19 | 6 31 50·51 | 24 4 59·7 | ·2310890 | 0 41·6 | 110 28 28·2 | 1 57 28·6 | ·856 |
| 20 | 6 37 13·00 | 24 2 36·9 | ·2305929 | 0 43·0 | 112 5 48·2 | 2 2 8·2 | ·856 |
| 21 | 6 42 35·23 | 23 59 31·3 | ·2300818 | 0 44·5 | 113 43 9·3 | 2 6 41·9 | ·856 |
| 22 | 6 47 57·15 | 23 55 42·9 | ·2295554 | 0 45·9 | 115 20 31·7 | 2 11 9·6 | ·856 |
| 23 | 6 53 18·70 | 23 51 12·0 | ·2290138 | 0 47·3 | 116 57 55·1 | 2 15 31·0 | ·856 |
| 24 | 6 58 39·82 | 23 45 58·6 | ·2284569 | 0 48·7 | 118 35 19·6 | 2 19 45·9 | ·856 |
| 25 | 7 4 0·47 | 23 40 3·0 | ·2278846 | 0 50·1 | 120 12 45·1 | 2 23 54·1 | ·856 |
| 26 | 7 9 20·58 | 23 33 25·5 | ·2272968 | 0 51·5 | 121 50 11·4 | 2 27 55·4 | ·856 |
| 27 | 7 14 40·11 | 23 26 6·2 | ·2266934 | 0 52·9 | 123 27 38·7 | 2 31 49·6 | ·856 |
| 28 | 7 19 59·00 | 23 18 5·5 | ·2260745 | 0 54·3 | 125 5 6·8 | 2 35 36·4 | ·856 |
| 29 | 7 25 17·20 | 23 9 23·7 | ·2254399 | 0 55·7 | 126 42 35·6 | 2 39 15·8 | ·856 |
| 30 | 7 30 34·67 | 23 0 1·1 | ·2247895 | 0 57·0 | 128 20 5·1 | 2 42 47·5 | ·856 |
| 31 | 7 35 51·35 | N.22 49 58·1 | 0·2241233 | 0 58·3 | 129 57 35·2 | N.2 46 11·4 | 9·856 |

# JUNE, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 55 32 ·14 | +13 ·21 | 0 ·35 | N.22 46 54 ·5 | +26 ·3 | 4 ·8 | 5 ·0 |
| 0 49 ·64 | 13 ·25 | 0 ·35 | 22 57 6 ·2 | 24 ·7 | 4 ·8 | 5 ·0 |
| 6 7 ·90 | 13 ·28 | 0 ·35 | 23 6 38 ·4 | 23 ·0 | 4 ·8 | 5 ·0 |
| 11 26 ·86 | 13 ·31 | 0 ·35 | 23 15 30 ·4 | 21 ·3 | 4 ·8 | 5 ·0 |
| 16 46 ·50 | 13 ·33 | 0 ·35 | 23 23 41 ·9 | 19 ·6 | 4 ·8 | 5 ·0 |
| 22 6 ·74 | 13 ·36 | 0 ·35 | 23 31 12 ·6 | 17 ·9 | 4 ·8 | 5 ·0 |
| 27 27 ·54 | 13 ·38 | 0 ·35 | 23 38 2 ·1 | 16 ·2 | 4 ·8 | 5 ·0 |
| 32 48 ·84 | 13 ·40 | 0 ·35 | 23 44 10 ·1 | 14 ·5 | 4 ·8 | 5 ·0 |
| 38 10 ·59 | 13 ·41 | 0 ·35 | 23 49 36 ·2 | 12 ·7 | 4 ·8 | 5 ·0 |
| 43 32 ·72 | 13 ·43 | 0 ·35 | 23 54 20 ·2 | 11 ·0 | 4 ·8 | 5 ·0 |
| 48 55 ·18 | 13 ·44 | 0 ·35 | 23 58 22 ·0 | 9 ·2 | 4 ·8 | 5 ·0 |
| 54 17 ·93 | 13 ·45 | 0 ·35 | 24 1 41 ·3 | 7 ·4 | 4 ·8 | 5 ·0 |
| 59 40 ·89 | 13 ·46 | 0 ·35 | 24 4 17 ·9 | 5 ·6 | 4 ·8 | 5 ·0 |
| 5 4 ·00 | 13 ·47 | 0 ·35 | 24 6 11 ·7 | 3 ·8 | 4 ·8 | 5 ·0 |
| 10 27 ·22 | 13 ·47 | 0 ·35 | 24 7 22 ·6 | 2 ·1 | 4 ·8 | 5 ·0 |
| 15 50 ·46 | 13 ·47 | 0 ·35 | 24 7 50 ·6 | + 0 ·3 | 4 ·8 | 5 ·0 |
| 21 13 ·68 | 13 ·47 | 0 ·35 | 24 7 35 ·5 | — 1 ·5 | 4 ·8 | 5 ·0 |
| 26 36 ·83 | 13 ·46 | 0 ·35 | 24 6 37 ·3 | 3 ·3 | 4 ·8 | 5 ·0 |
| 31 59 ·83 | 13 ·45 | 0 ·35 | 24 4 56 ·2 | 5 ·1 | 4 ·8 | 5 ·0 |
| 37 22 ·64 | 13 ·44 | 0 ·35 | 24 2 32 ·0 | 6 ·9 | 4 ·8 | 5 ·0 |
| 42 45 ·18 | 13 ·43 | 0 ·36 | 23 59 24 ·9 | 8 ·7 | 4 ·9 | 5 ·1 |
| 48 7 ·41 | 13 ·42 | 0 ·36 | 23 55 34 ·9 | 10 ·5 | 4 ·9 | 5 ·1 |
| 53 29 ·26 | 13 ·40 | 0 ·36 | 23 51 2 ·4 | 12 ·2 | 4 ·9 | 5 ·1 |
| 58 50 ·68 | 13 ·38 | 0 ·36 | 23 45 47 ·3 | 14 ·0 | 4 ·9 | 5 ·1 |
| 4 11 ·63 | 13 ·36 | 0 ·36 | 23 39 49 ·9 | 15 ·8 | 4 ·9 | 5 ·1 |
| 9 32 ·03 | 13 ·34 | 0 ·36 | 23 33 10 ·5 | 17 ·5 | 4 ·9 | 5 ·1 |
| 14 51 ·85 | 13 ·31 | 0 ·36 | 23 25 49 ·3 | 19 ·2 | 4 ·9 | 5 ·1 |
| 20 11 ·02 | 13 ·28 | 0 ·36 | 23 17 46 ·6 | 21 ·0 | 4 ·9 | 5 ·1 |
| 25 29 ·49 | 13 ·25 | 0 ·36 | 23 9 2 ·7 | 22 ·7 | 4 ·9 | 5 ·1 |
| 30 47 ·22 | 13 ·22 | 0 ·36 | 22 59 38 ·0 | 24 ·4 | 4 ·9 | 5 ·1 |
| 36 4 ·16 | +13 ·19 | 0 ·36 | N.22 49 32 ·8 | —26 ·1 | 4 ·9 | 5 ·1 |

# JULY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 7 35 51·35 | N.22 49 58·1 | 0·2241233 | 0 58·3 | 129 57 35·2 | N.2 46 11·4 | 9· |
| 2 | 7 41 7·20 | 22 39 15·1 | ·2234411 | 0 59·6 | 131 35 5·8 | 2 49 27·3 | · |
| 3 | 7 46 22·18 | 22 27 52·5 | ·2227428 | 1 0·9 | 133 12 36·9 | 2 52 35·0 | · |
| 4 | 7 51 36·24 | 22 15 50·9 | ·2220285 | 1 2·2 | 134 50 8·5 | 2 55 34·4 | · |
| 5 | 7 56 49·34 | 22 3 10·5 | ·2212980 | 1 3·5 | 136 27 40·3 | 2 58 25·3 | · |
| 6 | 8 2 1·45 | 21 49 52·1 | ·2205514 | 1 4·8 | 138 5 12·4 | 3 1 7·6 | · |
| 7 | 8 7 12·52 | 21 35 56·1 | ·2197886 | 1 6·1 | 139 42 44·6 | 3 3 41·2 | · |
| 8 | 8 12 22·53 | 21 21 23·0 | ·2190096 | 1 7·3 | 141 20 16·8 | 3 6 5·9 | · |
| 9 | 8 17 31·44 | 21 6 13·3 | ·2182146 | 1 8·5 | 142 57 49·1 | 3 8 21·6 | · |
| 10 | 8 22 39·22 | 20 50 27·8 | ·2174034 | 1 9·7 | 144 35 21·2 | 3 10 28·2 | · |
| 11 | 8 27 45·85 | 20 34 6·9 | ·2165762 | 1 10·9 | 146 12 53·1 | 3 12 25·6 | · |
| 12 | 8 32 51·31 | 20 17 11·3 | ·2157330 | 1 12·0 | 147 50 24·8 | 3 14 13·8 | · |
| 13 | 8 37 55·59 | 19 59 41·6 | ·2148739 | 1 13·1 | 149 27 56·1 | 3 15 52·5 | · |
| 14 | 8 42 58·65 | 19 41 38·3 | ·2139989 | 1 14·2 | 151 5 26·9 | 3 17 21·8 | · |
| 15 | 8 48 0·50 | 19 23 2·2 | ·2131081 | 1 15·3 | 152 42 57·1 | 3 18 41·6 | · |
| 16 | 8 53 1·11 | 19 3 53·8 | ·2122016 | 1 16·3 | 154 20 26·8 | 3 19 51·9 | · |
| 17 | 8 58 0·49 | 18 44 13·9 | ·2112794 | 1 17·4 | 155 57 55·7 | 3 20 52·5 | · |
| 18 | 9 2 58·63 | 18 24 3·1 | ·2103415 | 1 18·4 | 157 35 23·8 | 3 21 43·4 | · |
| 19 | 9 7 55·52 | 18 3 22·1 | ·2093880 | 1 19·4 | 159 12 51·0 | 3 22 24·6 | · |
| 20 | 9 12 51·17 | 17 42 11·5 | ·2084190 | 1 20·4 | 160 50 17·2 | 3 22 56·1 | · |
| 21 | 9 17 45·59 | 17 20 32·0 | ·2074345 | 1 21·4 | 162 27 42·4 | 3 23 17·8 | · |
| 22 | 9 22 38·77 | 16 58 24·4 | ·2064344 | 1 22·3 | 164 5 6·4 | 3 23 29·8 | · |
| 23 | 9 27 30·72 | 16 35 49·3 | ·2054188 | 1 23·2 | 165 42 29·1 | 3 23 31·9 | · |
| 24 | 9 32 21·46 | 16 12 47·4 | ·2043877 | 1 24·1 | 167 19 50·5 | 3 23 24·4 | · |
| 25 | 9 37 10·99 | 15 49 19·4 | ·2033408 | 1 25·0 | 168 57 10·6 | 3 23 7·0 | · |
| 26 | 9 41 59·34 | 15 25 26·1 | ·2022783 | 1 25·9 | 170 34 29·1 | 3 22 39·9 | · |
| 27 | 9 46 46·51 | 15 1 8·1 | ·2011999 | 1 26·8 | 172 11 46·1 | 3 22 3·1 | · |
| 28 | 9 51 32·52 | 14 36 26·3 | ·2001056 | 1 27·6 | 173 49 1·4 | 3 21 16·6 | · |
| 29 | 9 56 17·39 | 14 11 21·2 | ·1989954 | 1 28·4 | 175 26 15·0 | 3 20 20·5 | · |
| 30 | 10 1 1·13 | 13 45 53·7 | ·1978691 | 1 29·1 | 177 3 26·8 | 3 19 14·8 | · |
| 31 | 10 5 43·77 | 13 20 4·5 | ·1967267 | 1 29·9 | 178 40 36·7 | 3 17 59·6 | · |
| 32 | 10 10 25·34 | N.12 53 54·3 | 0·1955682 | 1 30·6 | 180 17 44·7 | N.3 16 34·9 | 9· |

# JULY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m | s | s | ° ′ ″ | ″ | ″ | ″ |
| 7 36 4·16 | +13·19 | 0·36 | N.22 49 32·8 | −26·1 | 4·9 | 5·1 |
| 7 41 20·26 | 13·16 | 0·36 | 22 38 47·6 | 27·8 | 4·9 | 5·1 |
| 7 46 35·49 | 13·12 | 0·36 | 22 27 22·7 | 29·4 | 4·9 | 5·1 |
| 7 51 49·79 | 13·08 | 0·36 | 22 15 18·8 | 31·0 | 4·9 | 5·1 |
| 7 57 3·12 | 13·03 | 0·36 | 22 2 36·1 | 32·6 | 5·0 | 5·2 |
| 8 2 15·46 | 12·99 | 0·36 | 21 49 15·4 | 34·2 | 5·0 | 5·2 |
| 8 7 26·75 | 12·95 | 0·36 | 21 35 17·0 | 35·7 | 5·0 | 5·2 |
| 8 12 36·98 | 12·91 | 0·36 | 21 20 41·4 | 37·3 | 5·0 | 5·2 |
| 8 17 46·10 | 12·86 | 0·36 | 21 5 29·2 | 38·8 | 5·0 | 5·2 |
| 8 22 54·08 | 12·81 | 0·36 | 20 49 41·1 | 40·3 | 5·0 | 5·2 |
| 8 28 0·90 | 12·76 | 0·36 | 20 33 17·7 | 41·7 | 5·0 | 5·2 |
| 8 33 6·54 | 12·71 | 0·36 | 20 16 19·6 | 43·1 | 5·0 | 5·2 |
| 8 38 11·00 | 12·66 | 0·36 | 19 58 47·3 | 44·5 | 5·0 | 5·2 |
| 8 43 14·23 | 12·61 | 0·36 | 19 40 41·5 | 45·9 | 5·0 | 5·2 |
| 8 48 16·24 | 12·56 | 0·36 | 19 22 2·9 | 47·3 | 5·1 | 5·3 |
| 8 53 17·01 | 12·51 | 0·36 | 19 2 52·0 | 48·6 | 5·1 | 5·3 |
| 8 58 16·54 | 12·45 | 0·36 | 18 43 9·5 | 49·9 | 5·1 | 5·3 |
| 9 3 14·83 | 12·40 | 0·36 | 18 22 56·2 | 51·2 | 5·1 | 5·3 |
| 9 8 11·86 | 12·35 | 0·36 | 18 2 12·7 | 52·4 | 5·1 | 5·3 |
| 9 13 7·64 | 12·30 | 0·36 | 17 40 59·6 | 53·6 | 5·1 | 5·3 |
| 9 18 2·19 | 12·25 | 0·36 | 17 19 17·6 | 54·8 | 5·1 | 5·3 |
| 9 22 55·49 | 12·20 | 0·36 | 16 57 7·6 | 56·0 | 5·1 | 5·3 |
| 9 27 47·56 | 12·14 | 0·36 | 16 34 30·1 | 57·1 | 5·1 | 5·3 |
| 9 32 38·41 | 12·09 | 0·36 | 16 11 25·8 | 58·2 | 5·2 | 5·4 |
| 9 37 28·05 | 12·04 | 0·36 | 15 47 55·4 | 59·3 | 5·2 | 5·4 |
| 9 42 16·50 | 12·00 | 0·36 | 15 23 59·8 | 60·3 | 5·2 | 5·4 |
| 9 47 3·77 | 11·95 | 0·36 | 14 59 39·5 | 61·3 | 5·2 | 5·4 |
| 9 51 49·87 | 11·90 | 0·36 | 14 34 55·5 | 62·3 | 5·2 | 5·4 |
| 9 56 34·83 | 11·85 | 0·36 | 14 9 48·1 | 63·3 | 5·2 | 5·4 |
| 10 1 18·66 | 11·80 | 0·36 | 13 44 18·4 | 64·2 | 5·2 | 5·4 |
| 10 6 1·38 | 11·75 | 0·37 | 13 18 27·1 | 65·1 | 5·3 | 5·5 |
| 10 10 43·03 | +11·71 | 0·37 | N.12 52 14·8 | −65·9 | 5·3 | 5·5 |

# AUGUST, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | No |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 10 10 25·34 | N. 12 53 54·3 | 0·1955682 | 1 30·6 | 180 17 44·7 | N. 3 16 34·9 | 9·857 |
| 2 | 10 15 5·84 | 12 27 23·8 | ·1943934 | 1 31·4 | 181 54 50·6 | 3 15 0·9 | ·857 |
| 3 | 10 19 45·29 | 12 0 33·9 | ·1932024 | 1 32·1 | 183 31 54·5 | 3 13 17·6 | ·857 |
| 4 | 10 24 23·74 | 11 33 25·2 | ·1919950 | 1 32·8 | 185 8 56·2 | 3 11 25·1 | ·857 |
| 5 | 10 29 1·20 | 11 5 58·5 | ·1907713 | 1 33·5 | 186 45 55·7 | 3 9 23·5 | ·857 |
| 6 | 10 33 37·70 | 10 38 14·5 | ·1895312 | 1 34·2 | 188 22 52·9 | 3 7 13·0 | ·857 |
| 7 | 10 38 13·26 | 10 10 14·0 | ·1882748 | 1 34·8 | 189 59 47·9 | 3 4 53·6 | ·857 |
| 8 | 10 42 47·92 | 9 41 57·7 | ·1870021 | 1 35·5 | 191 36 40·4 | 3 2 25·4 | ·857 |
| 9 | 10 47 21·70 | 9 13 26·4 | ·1857130 | 1 36·1 | 193 13 30·5 | 2 59 48·7 | ·858 |
| 10 | 10 51 54·64 | 8 44 40·8 | ·1844077 | 1 36·7 | 194 50 18·2 | 2 57 3·4 | ·858 |
| 11 | 10 56 26·77 | 8 15 41·5 | ·1830861 | 1 37·3 | 196 27 3·4 | 2 54 9·8 | ·858 |
| 12 | 11 0 58·13 | 7 46 29·3 | ·1817483 | 1 37·9 | 198 3 46·0 | 2 51 8·0 | ·858 |
| 13 | 11 5 28·74 | 7 17 5·0 | ·1803943 | 1 38·4 | 199 40 26·1 | 2 47 58·2 | ·858 |
| 14 | 11 9 58·65 | 6 47 29·2 | ·1790243 | 1 39·0 | 201 17 3·6 | 2 44 40·4 | ·858 |
| 15 | 11 14 27·89 | 6 17 42·7 | ·1776384 | 1 39·5 | 202 53 38·4 | 2 41 15·0 | ·858 |
| 16 | 11 18 56·50 | 5 47 46·2 | ·1762366 | 1 40·1 | 204 30 10·5 | 2 37 42·0 | ·858 |
| 17 | 11 23 24·53 | 5 17 40·3 | ·1748191 | 1 40·6 | 206 6 40·0 | 2 34 1·7 | ·858 |
| 18 | 11 27 52·00 | 4 47 25·8 | ·1733856 | 1 41·1 | 207 43 6·8 | 2 30 14·1 | ·858 |
| 19 | 11 32 18·97 | 4 17 3·3 | ·1719364 | 1 41·6 | 209 19 30·8 | 2 26 19·6 | ·858 |
| 20 | 11 36 45·48 | 3 46 33·6 | ·1704713 | 1 42·1 | 210 55 52·1 | 2 22 18·3 | ·858 |
| 21 | 11 41 11·56 | 3 15 57·3 | ·1689904 | 1 42·6 | 212 32 10·7 | 2 18 10·3 | ·858 |
| 22 | 11 45 37·27 | 2 45 15·1 | ·1674936 | 1 43·1 | 214 8 26·5 | 2 13 56·0 | ·859 |
| 23 | 11 50 2·64 | 2 14 27·8 | ·1659808 | 1 43·6 | 215 44 39·5 | 2 9 35·4 | ·859 |
| 24 | 11 54 27·72 | 1 43 36·0 | ·1644520 | 1 44·1 | 217 20 49·8 | 2 5 8·9 | ·859 |
| 25 | 11 58 52·54 | 1 12 40·4 | ·1629071 | 1 44·5 | 218 56 57·4 | 2 0 36·6 | ·859 |
| 26 | 12 3 17·17 | 0 41 41·7 | ·1613461 | 1 45·0 | 220 33 2·2 | 1 55 58·8 | ·859 |
| 27 | 12 7 41·63 | N. 0 10 40·6 | ·1597687 | 1 45·4 | 222 9 4·3 | 1 51 15·6 | ·859 |
| 28 | 12 12 5·98 | S. 0 20 22·2 | ·1581749 | 1 45·9 | 223 45 3·6 | 1 46 27·3 | ·859 |
| 29 | 12 16 30·24 | 0 51 26·0 | ·1565646 | 1 46·3 | 225 21 0·3 | 1 41 34·2 | ·859 |
| 30 | 12 20 54·47 | 1 22 30·1 | ·1549376 | 1 46·8 | 226 56 54·3 | 1 36 36·5 | ·859 |
| 31 | 12 25 18·70 | 1 53 33·7 | ·1532939 | 1 47·2 | 228 32 45·6 | 1 31 34·3 | ·859 |
| 32 | 12 29 42·98 | S. 2 24 36·1 | 0·1516333 | 1 47·7 | 230 8 34·3 | N. 1 26 28·1 | 9·859 |

# AUGUST, 1845.

At Transit over the Meridian of Greenwich.

| *pparent* ight ension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 43 ·03 | +11 ·71 | 0 ·37 | N.12 52 14 ·8 | −65 ·9 | 5 ·3 | 5 ·5 |
| 5 23 ·61 | 11 ·67 | 0 ·37 | 12 25 42 ·2 | 66 ·8 | 5 ·3 | 5 ·5 |
| 0 3 ·13 | 11 ·63 | 0 ·37 | 11 58 50 ·3 | 67 ·6 | 5 ·3 | 5 ·5 |
| 4 41 ·65 | 11 ·58 | 0 ·37 | 11 31 39 ·6 | 68 ·4 | 5 ·3 | 5 ·5 |
| 9 19 ·18 | 11 ·54 | 0 ·37 | 11 4 11 ·0 | 69 ·1 | 5 ·3 | 5 ·5 |
| 3 55 ·75 | 11 ·50 | 0 ·37 | 10 36 25 ·1 | 69 ·8 | 5 ·3 | 5 ·5 |
| 8 31 ·37 | 11 ·47 | 0 ·38 | 10 8 22 ·7 | 70 ·4 | 5 ·4 | 5 ·6 |
| 3 6 ·10 | 11 ·43 | 0 ·38 | 9 40 4 ·7 | 71 ·1 | 5 ·4 | 5 ·6 |
| 7 39 ·94 | 11 ·39 | 0 ·38 | 9 11 31 ·7 | 71 ·7 | 5 ·4 | 5 ·6 |
| 2 12 ·94 | 11 ·36 | 0 ·38 | 8 42 44 ·4 | 72 ·3 | 5 ·4 | 5 ·6 |
| 6 45 ·13 | 11 ·33 | 0 ·38 | 8 13 43 ·5 | 72 ·8 | 5 ·4 | 5 ·6 |
| 1 16 ·55 | 11 ·30 | 0 ·38 | 7 44 29 ·8 | 73 ·3 | 5 ·4 | 5 ·6 |
| 5 47 ·20 | 11 ·26 | 0 ·38 | 7 15 4 ·0 | 73 ·8 | 5 ·5 | 5 ·7 |
| 0 17 ·17 | 11 ·23 | 0 ·38 | 6 45 26 ·7 | 74 ·3 | 5 ·5 | 5 ·7 |
| 4 46 ·47 | 11 ·21 | 0 ·38 | 6 15 38 ·8 | 74 ·7 | 5 ·5 | 5 ·7 |
| 9 15 ·14 | 11 ·18 | 0 ·38 | 5 45 41 ·0 | 75 ·1 | 5 ·5 | 5 ·7 |
| 3 43 ·23 | 11 ·16 | 0 ·38 | 5 15 33 ·9 | 75 ·5 | 5 ·5 | 5 ·7 |
| 8 10 ·76 | 11 ·14 | 0 ·38 | 4 45 18 ·1 | 75 ·8 | 5 ·6 | 5 ·8 |
| 2 37 ·79 | 11 ·12 | 0 ·38 | 4 14 54 ·4 | 76 ·1 | 5 ·6 | 5 ·8 |
| 7 4 ·36 | 11 ·10 | 0 ·38 | 3 44 23 ·6 | 76 ·4 | 5 ·6 | 5 ·8 |
| 1 30 ·50 | 11 ·08 | 0 ·38 | 3 13 46 ·3 | 76 ·7 | 5 ·6 | 5 ·8 |
| 5 56 ·27 | 11 ·06 | 0 ·38 | 2 43 3 ·0 | 76 ·9 | 5 ·6 | 5 ·8 |
| 0 21 ·71 | 11 ·05 | 0 ·38 | 2 12 14 ·7 | 77 ·1 | 5 ·7 | 5 ·9 |
| 4 46 ·86 | 11 ·04 | 0 ·38 | 1 41 22 ·0 | 77 ·3 | 5 ·7 | 5 ·9 |
| 9 11 ·75 | 11 ·03 | 0 ·38 | 1 10 25 ·6 | 77 ·4 | 5 ·7 | 5 ·9 |
| 3 36 ·45 | 11 ·02 | 0 ·38 | 0 39 26 ·1 | 77 ·5 | 5 ·7 | 5 ·9 |
| 8 0 ·99 | 11 ·02 | 0 ·38 | N. 0 8 24 ·2 | 77 ·6 | 5 ·7 | 5 ·9 |
| 2 25 ·41 | 11 ·01 | 0 ·39 | S. 0 22 39 ·3 | 77 ·6 | 5 ·8 | 6 ·0 |
| 6 49 ·75 | 11 ·01 | 0 ·39 | 0 53 43 ·7 | 77 ·7 | 5 ·8 | 6 ·0 |
| 1 14 ·06 | 11 ·01 | 0 ·39 | 1 24 48 ·4 | 77 ·7 | 5 ·8 | 6 ·0 |
| 5 38 ·38 | 11 ·01 | 0 ·39 | 1 55 52 ·5 | 77 ·6 | 5 ·8 | 6 ·0 |
| 0 2 ·75 | +11 ·02 | 0 ·40 | S. 2 26 55 ·4 | −77 ·6 | 5 ·9 | 6 ·1 |

# SEPTEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 12 29 42·98 | S. 2 24 36·1 | 0·1516333 | 1 47·7 | 230 8 34·3 | N.1 26 28·1 | 9·85 |
| 2 | 12 34 7·34 | 2 55 36·7 | ·1499557 | 1 48·2 | 231 44 20·5 | 1 21 17·9 | ·85 |
| 3 | 12 38 31·83 | 3 26 34·6 | ·1482610 | 1 48·6 | 233 20 4·1 | 1 16 4·0 | ·86 |
| 4 | 12 42 56·47 | 3 57 29·3 | ·1465491 | 1 49·1 | 234 55 45·2 | 1 10 46·7 | ·86 |
| 5 | 12 47 21·33 | 4 28 20·0 | ·1448199 | 1 49·6 | 236 31 23·9 | 1 5 26·2 | ·86 |
| 6 | 12 51 46·42 | 4 59 6·0 | ·1430734 | 1 50·1 | 238 7 0·1 | 1 0 2·9 | ·86 |
| 7 | 12 56 11·80 | 5 29 46·5 | ·1413095 | 1 50·5 | 239 42 34·0 | 0 54 36·8 | ·86 |
| 8 | 13 0 37·49 | 6 0 20·8 | ·1395283 | 1 51·0 | 241 18 5·5 | 0 49 8·4 | ·86 |
| 9 | 13 5 3·54 | 6 30 48·2 | ·1377296 | 1 51·5 | 242 53 34·7 | 0 43 37·7 | ·86 |
| 10 | 13 9 29·97 | 7 1 8·0 | ·1359136 | 1 52·0 | 244 29 1·8 | 0 38 5·2 | ·86 |
| 11 | 13 13 56·84 | 7 31 19·5 | ·1340803 | 1 52·5 | 246 4 26·6 | 0 32 31·1 | ·86 |
| 12 | 13 18 24·17 | 8 1 21·9 | ·1322297 | 1 53·0 | 247 39 49·3 | 0 26 55·5 | ·86 |
| 13 | 13 22 52·01 | 8 31 14·6 | ·1303619 | 1 53·6 | 249 15 9·9 | 0 21 18·8 | ·86 |
| 14 | 13 27 20·40 | 9 0 56·8 | ·1284768 | 1 54·1 | 250 50 28·5 | 0 15 41·3 | ·86 |
| 15 | 13 31 49·38 | 9 30 27·8 | ·1265743 | 1 54·7 | 252 25 45·2 | 0 10 3·1 | ·86 |
| 16 | 13 36 18·97 | 9 59 46·9 | ·1246546 | 1 55·2 | 254 1 0·0 | N.0 4 24·6 | ·86 |
| 17 | 13 40 49·22 | 10 28 53·4 | ·1227174 | 1 55·8 | 255 36 13·0 | S.0 1 14·0 | ·86 |
| 18 | 13 45 20·17 | 10 57 46·5 | ·1207628 | 1 56·3 | 257 11 24·2 | 0 6 52·5 | ·86 |
| 19 | 13 49 51·86 | 11 26 25·6 | ·1187908 | 1 56·9 | 258 46 33·8 | 0 12 30·5 | ·86 |
| 20 | 13 54 24·31 | 11 54 49·8 | ·1168011 | 1 57·5 | 260 21 41·7 | 0 18 7·9 | ·86 |
| 21 | 13 58 57·56 | 12 22 58·5 | ·1147938 | 1 58·2 | 261 56 48·1 | 0 23 44·3 | ·86 |
| 22 | 14 3 31·66 | 12 50 51·0 | ·1127688 | 1 58·8 | 263 31 53·1 | 0 29 19·6 | ·86 |
| 23 | 14 8 6·61 | 13 18 26·5 | ·1107257 | 1 59·5 | 265 6 56·7 | 0 34 53·4 | ·86 |
| 24 | 14 12 42·47 | 13 45 44·2 | ·1086645 | 2 0·1 | 266 41 59·0 | 0 40 25·6 | ·86 |
| 25 | 14 17 19·25 | 14 12 43·5 | ·1065849 | 2 0·8 | 268 17 0·0 | 0 45 55·8 | ·86 |
| 26 | 14 21 56·99 | 14 39 23·5 | ·1044868 | 2 1·4 | 269 51 59·8 | 0 51 23·8 | ·86 |
| 27 | 14 26 35·70 | 15 5 43·6 | ·1023699 | 2 2·1 | 271 26 58·5 | 0 56 49·4 | ·86 |
| 28 | 14 31 15·42 | 15 31 43·0 | ·1002340 | 2 2·8 | 273 1 56·2 | 1 2 12·3 | ·86 |
| 29 | 14 35 56·16 | 15 57 20·9 | ·0980790 | 2 3·5 | 274 36 52·9 | 1 7 32·3 | ·86 |
| 30 | 14 40 37·94 | 16 22 36·5 | ·0959045 | 2 4·3 | 276 11 48·7 | 1 12 49·1 | ·86 |
| 31 | 14 45 20·77 | S.16 47 29·1 | 0·0937104 | 2 5·1 | 277 46 43·7 | S.1 18 2·5 | 9·86 |

# SEPTEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 12 30 2 ·75 | +11 ·02 | 0 ·40 | S. 2 26 55 ·4 | −77 ·6 | 5 ·9 | 6 ·1 |
| 12 34 27 ·21 | 11 ·02 | 0 ·40 | 2 57 56 ·4 | 77 ·5 | 5 ·9 | 6 ·1 |
| 12 38 51 ·79 | 11 ·03 | 0 ·40 | 3 28 54 ·7 | 77 ·4 | 5 ·9 | 6 ·1 |
| 12 43 16 ·53 | 11 ·04 | 0 ·40 | 3 59 49 ·7 | 77 ·2 | 5 ·9 | 6 ·1 |
| 12 47 41 ·50 | 11 ·05 | 0 ·40 | 4 30 40 ·7 | 77 ·0 | 5 ·9 | 6 ·1 |
| 12 52 6 ·70 | 11 ·06 | 0 ·41 | 5 1 26 ·9 | 76 ·8 | 6 ·0 | 6 ·2 |
| 12 56 32 ·19 | 11 ·07 | 0 ·41 | 5 32 7 ·5 | 76 ·6 | 6 ·0 | 6 ·2 |
| 13 0 57 ·99 | 11 ·09 | 0 ·41 | 6 2 41 ·9 | 76 ·3 | 6 ·0 | 6 ·2 |
| 13 5 24 ·16 | 11 ·10 | 0 ·41 | 6 33 9 ·3 | 76 ·0 | 6 ·0 | 6 ·2 |
| 13 9 50 ·71 | 11 ·12 | 0 ·41 | 7 3 29 ·2 | 75 ·6 | 6 ·1 | 6 ·3 |
| 13 14 17 ·71 | 11 ·14 | 0 ·41 | 7 33 40 ·6 | 75 ·3 | 6 ·1 | 6 ·3 |
| 13 18 45 ·18 | 11 ·16 | 0 ·41 | 8 3 42 ·9 | 74 ·9 | 6 ·1 | 6 ·3 |
| 13 23 13 ·16 | 11 ·18 | 0 ·42 | 8 33 35 ·5 | 74 ·5 | 6 ·2 | 6 ·4 |
| 13 27 41 ·69 | 11 ·20 | 0 ·42 | 9 3 17 ·5 | 74 ·0 | 6 ·2 | 6 ·4 |
| 13 32 10 ·82 | 11 ·23 | 0 ·42 | 9 32 48 ·2 | 73 ·5 | 6 ·2 | 6 ·4 |
| 13 36 40 ·56 | 11 ·25 | 0 ·42 | 10 2 7 ·0 | 73 ·0 | 6 ·2 | 6 ·4 |
| 13 41 10 ·97 | 11 ·28 | 0 ·42 | 10 31 13 ·2 | 72 ·5 | 6 ·2 | 6 ·5 |
| 13 45 42 ·09 | 11 ·31 | 0 ·42 | 11 0 5 ·9 | 71 ·9 | 6 ·2 | 6 ·5 |
| 13 50 13 ·96 | 11 ·34 | 0 ·42 | 11 28 44 ·5 | 71 ·3 | 6 ·2 | 6 ·5 |
| 13 54 46 ·59 | 11 ·38 | 0 ·43 | 11 57 8 ·2 | 70 ·7 | 6 ·3 | 6 ·6 |
| 13 59 20 ·02 | 11 ·41 | 0 ·43 | 12 25 16 ·3 | 70 ·0 | 6 ·3 | 6 ·6 |
| 14 3 54 ·31 | 11 ·45 | 0 ·43 | 12 53 8 ·2 | 69 ·3 | 6 ·3 | 6 ·6 |
| 14 8 29 ·45 | 11 ·48 | 0 ·44 | 13 20 43 ·0 | 68 ·6 | 6 ·4 | 6 ·7 |
| 14 13 5 ·51 | 11 ·52 | 0 ·44 | 13 48 0 ·0 | 67 ·8 | 6 ·4 | 6 ·7 |
| 14 17 42 ·50 | 11 ·56 | 0 ·44 | 14 14 58 ·4 | 67 ·0 | 6 ·4 | 6 ·7 |
| 14 22 20 ·45 | 11 ·60 | 0 ·44 | 14 41 37 ·5 | 66 ·2 | 6 ·4 | 6 ·7 |
| 14 26 59 ·38 | 11 ·64 | 0 ·44 | 15 7 56 ·7 | 65 ·4 | 6 ·5 | 6 ·8 |
| 14 31 39 ·33 | 11 ·69 | 0 ·44 | 15 33 55 ·1 | 64 ·5 | 6 ·5 | 6 ·8 |
| 14 36 20 ·30 | 11 ·73 | 0 ·44 | 15 59 31 ·9 | 63 ·5 | 6 ·5 | 6 ·8 |
| 14 41 2 ·32 | 11 ·78 | 0 ·45 | 16 24 46 ·3 | 62 ·6 | 6 ·6 | 6 ·9 |
| 14 45 45 ·39 | +11 ·82 | 0 ·45 | S. 16 49 37 ·7 | −61 ·6 | 6 ·6 | 6 ·9 |

# OCTOBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 14 45 20·77 | S. 16 47 29·1 | 0·0937104 | 2 5·1 | 277 46 43·7 | S. 1 18 2·5 | 9·861 |
| 2 | 14 50 4·67 | 17 11 58·0 | ·0914964 | 2 5·9 | 279 21 37·9 | 1 23 12·3 | ·861 |
| 3 | 14 54 49·65 | 17 36 2·4 | ·0892622 | 2 6·7 | 280 56 31·4 | 1 28 18·3 | ·861 |
| 4 | 14 59 35·72 | 17 59 41·5 | ·0870077 | 2 7·5 | 282 31 24·4 | 1 33 20·1 | ·861 |
| 5 | 15 4 22·88 | 18 22 54·6 | ·0847328 | 2 8·4 | 284 6 16·8 | 1 38 17·6 | ·861 |
| 6 | 15 9 11·13 | 18 45 40·9 | ·0824372 | 2 9·2 | 285 41 8·7 | 1 43 10·6 | ·862 |
| 7 | 15 14 0·48 | 19 7 59·8 | ·0801209 | 2 10·1 | 287 16 0·3 | 1 47 58·8 | ·862 |
| 8 | 15 18 50·93 | 19 29 50·4 | ·0777838 | 2 11·0 | 288 50 51·5 | 1 52 42·1 | ·862 |
| 9 | 15 23 42·47 | 19 51 12·1 | ·0754256 | 2 12·0 | 290 25 42·5 | 1 57 20·2 | ·862 |
| 10 | 15 28 35·10 | 20 12 4·1 | ·0730464 | 2 12·9 | 292 0 33·3 | 2 1 52·8 | ·86 |
| 11 | 15 33 28·81 | 20 32 25·7 | ·0706460 | 2 13·9 | 293 35 23·9 | 2 6 19·9 | ·86 |
| 12 | 15 38 23·59 | 20 52 16·2 | ·0682243 | 2 14·8 | 295 10 14·6 | 2 10 41·2 | ·86 |
| 13 | 15 43 19·44 | 21 11 34·9 | ·0657811 | 2 15·8 | 296 45 5·2 | 2 14 56·6 | ·86 |
| 14 | 15 48 16·34 | 21 30 21·2 | ·0633165 | 2 16·8 | 298 19 55·9 | 2 19 5·7 | ·86 |
| 15 | 15 53 14·28 | 21 48 34·3 | ·0608302 | 2 17·9 | 299 54 46·8 | 2 23 8·5 | ·86 |
| 16 | 15 58 13·23 | 22 6 13·7 | ·0583222 | 2 18·9 | 301 29 37·8 | 2 27 4·7 | ·86 |
| 17 | 16 3 13·18 | 22 23 18·6 | ·0557923 | 2 19·9 | 303 4 29·1 | 2 30 54·2 | ·86 |
| 18 | 16 8 14·10 | 22 39 48·5 | ·0532403 | 2 21·0 | 304 39 20·7 | 2 34 36·9 | ·86 |
| 19 | 16 13 15·97 | 22 55 42·7 | ·0506660 | 2 22·1 | 306 14 12·7 | 2 38 12·4 | ·86 |
| 20 | 16 18 18·76 | 23 11 0·7 | ·0480693 | 2 23·2 | 307 49 5·1 | 2 41 40·8 | ·86 |
| 21 | 16 23 22·45 | 23 25 41·7 | ·0454498 | 2 24·4 | 309 23 57·9 | 2 45 1·8 | ·86 |
| 22 | 16 28 26·99 | 23 39 45·4 | ·0428074 | 2 25·5 | 310 58 51·3 | 2 48 15·2 | ·862 |
| 23 | 16 33 32·36 | 23 53 11·1 | ·0401417 | 2 26·7 | 312 33 45·2 | 2 51 21·0 | ·862 |
| 24 | 16 38 38·52 | 24 5 58·3 | ·0374524 | 2 27·8 | 314 8 39·7 | 2 54 18·9 | ·862 |
| 25 | 16 43 45·41 | 24 18 6·5 | ·0347391 | 2 29·0 | 315 43 34·9 | 2 57 8·9 | ·862 |
| 26 | 16 48 53·00 | 24 29 35·2 | ·0320015 | 2 30·1 | 317 18 30·8 | 2 59 50·8 | ·862 |
| 27 | 16 54 1·24 | 24 40 24·0 | ·0292391 | 2 31·3 | 318 53 27·4 | 3 2 24·5 | ·862 |
| 28 | 16 59 10·07 | 24 50 32·5 | ·0264516 | 2 32·5 | 320 28 24·8 | 3 4 49·9 | ·862 |
| 29 | 17 4 19·43 | 25 0 0·3 | ·0236386 | 2 33·8 | 322 3 23·1 | 3 7 6·8 | ·862 |
| 30 | 17 9 29·26 | 25 8 46·9 | ·0207997 | 2 35·0 | 323 38 22·2 | 3 9 15·2 | ·862 |
| 31 | 17 14 39·50 | 25 16 52·0 | ·0179343 | 2 36·3 | 325 13 22·3 | 3 11 14·9 | ·862 |
| 32 | 17 19 50·08 | S. 25 24 15·3 | 0·0150422 | 2 37·5 | 326 48 23·3 | S. 3 13 6·0 | 9·862 |

# OCTOBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 14 45 45 ·39 | +11 ·82 | 0 ·45 | S. 16 49 37 ·7 | −61 ·6 | 6 ·6 | 6 ·9 |
| 14 50 29 ·54 | 11 ·86 | 0 ·46 | 17 14 5 ·3 | 60 ·6 | 6 ·7 | 7 ·0 |
| 14 55 14 ·78 | 11 ·91 | 0 ·46 | 17 38 8 ·3 | 59 ·6 | 6 ·7 | 7 ·0 |
| 15 0 1 ·11 | 11 ·95 | 0 ·46 | 18 1 46 ·0 | 58 ·5 | 6 ·7 | 7 ·0 |
| 15 4 48 ·53 | 12 ·00 | 0 ·47 | 18 24 57 ·6 | 57 ·4 | 6 ·8 | 7 ·1 |
| 15 9 37 ·05 | 12 ·04 | 0 ·47 | 18 47 42 ·3 | 56 ·3 | 6 ·8 | 7 ·1 |
| 15 14 26 ·68 | 12 ·09 | 0 ·48 | 19 9 59 ·4 | 55 ·1 | 6 ·8 | 7 ·1 |
| 15 19 17 ·41 | 12 ·13 | 0 ·48 | 19 31 48 ·2 | 53 ·9 | 6 ·9 | 7 ·2 |
| 15 24 9 ·24 | 12 ·18 | 0 ·49 | 19 53 8 ·0 | 52 ·7 | 6 ·9 | 7 ·2 |
| 15 29 2 ·16 | 12 ·22 | 0 ·49 | 20 13 58 ·1 | 51 ·5 | 7 ·0 | 7 ·3 |
| 15 33 56 ·16 | 12 ·27 | 0 ·49 | 20 34 17 ·7 | 50 ·2 | 7 ·0 | 7 ·3 |
| 15 38 51 ·24 | 12 ·31 | 0 ·50 | 20 54 6 ·1 | 48 ·9 | 7 ·0 | 7 ·3 |
| 15 43 47 ·39 | 12 ·36 | 0 ·50 | 21 13 22 ·5 | 47 ·5 | 7 ·1 | 7 ·4 |
| 15 48 44 ·60 | 12 ·40 | 0 ·51 | 21 32 6 ·5 | 46 ·1 | 7 ·1 | 7 ·4 |
| 15 53 42 ·85 | 12 ·45 | 0 ·51 | 21 50 17 ·1 | 44 ·7 | 7 ·2 | 7 ·5 |
| 15 58 42 ·12 | 12 ·49 | 0 ·52 | 22 7 54 ·0 | 43 ·3 | 7 ·2 | 7 ·5 |
| 16 3 42 ·38 | 12 ·53 | 0 ·53 | 22 24 56 ·3 | 41 ·9 | 7 ·2 | 7 ·5 |
| 16 8 43 ·62 | 12 ·57 | 0 ·53 | 22 41 23 ·5 | 40 ·4 | 7 ·3 | 7 ·6 |
| 16 13 45 ·81 | 12 ·61 | 0 ·53 | 22 57 14 ·9 | 38 ·9 | 7 ·3 | 7 ·6 |
| 16 18 48 ·92 | 12 ·65 | 0 ·54 | 23 12 30 ·0 | 37 ·4 | 7 ·4 | 7 ·7 |
| 16 23 52 ·94 | 12 ·69 | 0 ·54 | 23 27 7 ·9 | 35 ·8 | 7 ·4 | 7 ·7 |
| 16 28 57 ·81 | 12 ·72 | 0 ·55 | 23 41 8 ·5 | 34 ·2 | 7 ·5 | 7 ·8 |
| 16 34 3 ·50 | 12 ·75 | 0 ·55 | 23 54 30 ·9 | 32 ·6 | 7 ·5 | 7 ·8 |
| 16 39 9 ·99 | 12 ·79 | 0 ·56 | 24 7 14 ·8 | 31 ·0 | 7 ·6 | 7 ·9 |
| 16 44 17 ·20 | 12 ·82 | 0 ·56 | 24 19 19 ·5 | 29 ·4 | 7 ·6 | 7 ·9 |
| 16 49 25 ·11 | 12 ·85 | 0 ·57 | 24 30 44 ·7 | 27 ·7 | 7 ·7 | 8 ·0 |
| 16 54 33 ·67 | 12 ·87 | 0 ·57 | 24 41 29 ·8 | 26 ·0 | 7 ·7 | 8 ·0 |
| 16 59 42 ·82 | 12 ·89 | 0 ·58 | 24 51 34 ·6 | 24 ·3 | 7 ·8 | 8 ·1 |
| 17 4 52 ·49 | 12 ·91 | 0 ·58 | 25 0 58 ·5 | 22 ·6 | 7 ·8 | 8 ·1 |
| 17 10 2 ·63 | 12 ·93 | 0 ·58 | 25 9 41 ·2 | 20 ·9 | 7 ·9 | 8 ·2 |
| 17 15 13 ·18 | 12 ·95 | 0 ·58 | 25 17 42 ·2 | 19 ·2 | 7 ·9 | 8 ·2 |
| 17 20 24 ·06 | +12 ·96 | 0 ·59 | S. 25 25 1 ·3 | −17 ·4 | 8 ·0 | 8 ·3 |

# NOVEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 17 19 50·08 | S. 25 24 15·3 | 0·0150422 | 2 37·5 | 326 48 23·3 | S. 3 13 6·0 | 9·862 |
| 2 | 17 25 0·94 | 25 30 56·6 | ·0121230 | 2 38·7 | 328 23 25·3 | 3 14 48·1 | ·862 |
| 3 | 17 30 12·00 | 25 36 55·5 | ·0091763 | 2 40·0 | 329 58 28·3 | 3 16 21·4 | ·862 |
| 4 | 17 35 23·19 | 25 42 11·9 | ·0062017 | 2 41·2 | 331 33 32·3 | 3 17 45·7 | ·861 |
| 5 | 17 40 34·43 | 25 46 45·6 | ·0031990 | 2 42·4 | 333 8 37·4 | 3 19 1·0 | ·861 |
| 6 | 17 45 45·65 | 25 50 36·4 | 0·0001677 | 2 43·7 | 334 43 43·6 | 3 20 7·2 | ·861 |
| 7 | 17 50 56·77 | 25 53 44·2 | 9·9971077 | 2 44·9 | 336 18 50·9 | 3 21 4·2 | ·861 |
| 8 | 17 56 7·71 | 25 56 8·9 | ·9940185 | 2 46·2 | 337 53 59·4 | 3 21 52·0 | ·861 |
| 9 | 18 1 18·39 | 25 57 50·5 | ·9909000 | 2 47·4 | 339 29 9·0 | 3 22 30·6 | ·861 |
| 10 | 18 6 28·73 | 25 58 49·0 | ·9877518 | 2 48·7 | 341 4 19·8 | 3 22 59·9 | ·861 |
| 11 | 18 11 38·65 | 25 59 4·4 | ·9845738 | 2 49·9 | 342 39 31·8 | 3 23 19·8 | ·861 |
| 12 | 18 16 48·08 | 25 58 36·7 | ·9813657 | 2 51·1 | 344 14 45·0 | 3 23 30·5 | ·861 |
| 13 | 18 21 56·93 | 25 57 26·1 | ·9781272 | 2 52·3 | 345 49 59·5 | 3 23 31·8 | ·861 |
| 14 | 18 27 5·14 | 25 55 32·6 | ·9748581 | 2 53·5 | 347 25 15·3 | 3 23 23·7 | ·861 |
| 15 | 18 32 12·62 | 25 52 56·4 | ·9715579 | 2 54·7 | 349 0 32·3 | 3 23 6·3 | ·861 |
| 16 | 18 37 19·30 | 25 49 37·7 | ·9682264 | 2 55·9 | 350 35 50·6 | 3 22 39·5 | ·861 |
| 17 | 18 42 25·11 | 25 45 36·7 | ·9648632 | 2 57·0 | 352 11 10·3 | 3 22 3·4 | ·861 |
| 18 | 18 47 29·98 | 25 40 53·7 | ·9614679 | 2 58·1 | 353 46 31·3 | 3 21 18·0 | ·861 |
| 19 | 18 52 33·83 | 25 35 28·9 | ·9580401 | 2 59·2 | 355 21 53·6 | 3 20 23·3 | ·861 |
| 20 | 18 57 36·58 | 25 29 22·7 | ·9545795 | 3 0·3 | 356 57 17·3 | 3 19 19·3 | ·861 |
| 21 | 19 2 38·18 | 25 22 35·5 | ·9510854 | 3 1·4 | 358 32 42·4 | 3 18 6·2 | ·861 |
| 22 | 19 7 38·55 | 25 15 7·6 | ·9475573 | 3 2·4 | 0 8 8·9 | 3 16 43·8 | ·861 |
| 23 | 19 12 37·63 | 25 6 59·4 | ·9439946 | 3 3·5 | 1 43 36·8 | 3 15 12·4 | ·861 |
| 24 | 19 17 35·35 | 24 58 11·4 | ·9403966 | 3 4·5 | 3 19 6·1 | 3 13 31·9 | ·861 |
| 25 | 19 22 31·64 | 24 48 44·0 | ·9367628 | 3 5·5 | 4 54 36·9 | 3 11 42·5 | ·860 |
| 26 | 19 27 26·43 | 24 38 37·9 | ·9330926 | 3 6·4 | 6 30 9·1 | 3 9 44·2 | ·860 |
| 27 | 19 32 19·67 | 24 27 53·4 | ·9293852 | 3 7·4 | 8 5 42·7 | 3 7 37·0 | ·860 |
| 28 | 19 37 11·28 | 24 16 31·3 | ·9256401 | 3 8·3 | 9 41 17·8 | 3 5 21·1 | ·860 |
| 29 | 19 42 1·21 | 24 4 32·0 | ·9218567 | 3 9·2 | 11 16 54·3 | 3 2 56·7 | ·860 |
| 30 | 19 46 49·38 | 23 51 56·3 | ·9180341 | 3 10·0 | 12 52 32·4 | 3 0 23·6 | ·860 |
| 31 | 19 51 35·74 | S. 23 38 44·8 | 9·9141719 | 3 10·9 | 14 28 11·9 | S. 2 57 42·2 | 9·860 |

# NOVEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 20 24 ·06 | +12 ·96 | 0 ·59 | S. 25 25 1 ·3 | −17 ·4 | 8 ·0 | 8 ·3 |
| 25 35 ·21 | 12 ·97 | 0 ·59 | 25 31 38 ·3 | 15 ·7 | 8 ·0 | 8 ·3 |
| 30 46 ·56 | 12 ·98 | 0 ·60 | 25 37 32 ·8 | 13 ·9 | 8 ·1 | 8 ·4 |
| 35 58 ·02 | 12 ·98 | 0 ·60 | 25 42 44 ·7 | 12 ·1 | 8 ·2 | 8 ·5 |
| 41 9 ·53 | 12 ·98 | 0 ·60 | 25 47 13 ·8 | 10 ·3 | 8 ·2 | 8 ·5 |
| 46 21 ·01 | 12 ·98 | 0 ·61 | 25 50 59 ·9 | 8 ·5 | 8 ·3 | 8 ·6 |
| 51 32 ·38 | 12 ·97 | 0 ·61 | 25 54 3 ·0 | 6 ·7 | 8 ·3 | 8 ·6 |
| 56 43 ·56 | 12 ·96 | 0 ·62 | 25 56 22 ·8 | 4 ·9 | 8 ·4 | 8 ·7 |
| 1 54 ·48 | 12 ·95 | 0 ·63 | 25 57 59 ·5 | 3 ·1 | 8 ·5 | 8 ·8 |
| 7 5 ·03 | 12 ·93 | 0 ·63 | 25 58 53 ·0 | − 1 ·3 | 8 ·5 | 8 ·8 |
| 12 15 ·17 | 12 ·91 | 0 ·64 | 25 59 3 ·3 | + 0 ·5 | 8 ·6 | 8 ·9 |
| 17 24 ·79 | 12 ·89 | 0 ·64 | 25 58 30 ·5 | 2 ·3 | 8 ·7 | 9 ·0 |
| 22 33 ·83 | 12 ·86 | 0 ·64 | 25 57 14 ·7 | 4 ·1 | 8 ·7 | 9 ·0 |
| 27 42 ·20 | 12 ·83 | 0 ·64 | 25 55 16 ·0 | 5 ·9 | 8 ·7 | 9 ·1 |
| 32 49 ·85 | 12 ·80 | 0 ·65 | 25 52 34 ·5 | 7 ·6 | 8 ·7 | 9 ·1 |
| 37 56 ·67 | 12 ·76 | 0 ·65 | 25 49 10 ·5 | 9 ·4 | 8 ·8 | 9 ·2 |
| 43 2 ·62 | 12 ·72 | 0 ·66 | 25 45 4 ·1 | 11 ·1 | 8 ·9 | 9 ·3 |
| 48 7 ·61 | 12 ·68 | 0 ·67 | 25 40 15 ·7 | 12 ·9 | 9 ·0 | 9 ·4 |
| 53 11 ·57 | 12 ·64 | 0 ·67 | 25 34 45 ·5 | 14 ·6 | 9 ·1 | 9 ·5 |
| 58 14 ·41 | 12 ·59 | 0 ·67 | 25 28 33 ·9 | 16 ·3 | 9 ·1 | 9 ·5 |
| 3 16 ·09 | 12 ·54 | 0 ·68 | 25 21 41 ·3 | 18 ·0 | 9 ·2 | 9 ·6 |
| 8 16 ·52 | 12 ·49 | 0 ·69 | 25 14 7 ·9 | 19 ·7 | 9 ·3 | 9 ·7 |
| 13 15 ·65 | 12 ·43 | 0 ·70 | 25 5 54 ·2 | 21 ·4 | 9 ·4 | 9 ·8 |
| 18 13 ·39 | 12 ·37 | 0 ·70 | 24 57 0 ·8 | 23 ·1 | 9 ·5 | 9 ·9 |
| 23 9 ·70 | 12 ·31 | 0 ·71 | 24 47 28 ·0 | 24 ·7 | 9 ·6 | 10 ·0 |
| 28 4 ·48 | 12 ·25 | 0 ·71 | 24 37 16 ·5 | 26 ·3 | 9 ·6 | 10 ·0 |
| 32 57 ·71 | 12 ·18 | 0 ·71 | 24 26 26 ·6 | 27 ·9 | 9 ·7 | 10 ·1 |
| 37 49 ·29 | 12 ·11 | 0 ·71 | 24 14 59 ·2 | 29 ·4 | 9 ·8 | 10 ·2 |
| 42 39 ·18 | 12 ·04 | 0 ·71 | 24 2 54 ·7 | 30 ·9 | 9 ·9 | 10 ·3 |
| 47 27 ·28 | 11 ·97 | 0 ·72 | 23 50 13 ·8 | 32 ·4 | 10 ·0 | 10 ·4 |
| 52 13 ·56 | +11 ·89 | 0 ·73 | S. 23 36 57 ·2 | +33 ·9 | 10 ·1 | 10 ·5 |

# DECEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 19 51 35·74 | S. 23 38 44·8 | 9·9141719 | 3 10·9 | 14 28 11·9 | S. 2 57 42·2 | 9·860 |
| 2 | 19 56 20·22 | 23 24 58·1 | ·9102693 | 3 11·7 | 16 3 52·9 | 2 54 52·5 | ·860 |
| 3 | 20 1 2·77 | 23 10 37·0 | ·9063257 | 3 12·5 | 17 39 35·4 | 2 51 54·5 | ·860 |
| 4 | 20 5 43·32 | 22 55 42·2 | ·9023405 | 3 13·2 | 19 15 19·4 | 2 48 48·6 | ·860 |
| 5 | 20 10 21·82 | 22 40 14·4 | ·8983130 | 3 13·9 | 20 51 4·9 | 2 45 34·7 | ·860 |
| 6 | 20 14 58·22 | 22 24 14·4 | ·8942426 | 3 14·6 | 22 26 52·0 | 2 42 13·1 | ·860 |
| 7 | 20 19 32·47 | 22 7 42·9 | ·8901289 | 3 15·2 | 24 2 40·6 | 2 38 43·8 | ·860 |
| 8 | 20 24 4·50 | 21 50 40·7 | ·8859714 | 3 15·8 | 25 38 30·8 | 2 35 7·0 | ·860 |
| 9 | 20 28 34·28 | 21 33 8·6 | ·8817696 | 3 16·3 | 27 14 22·6 | 2 31 23·0 | ·859 |
| 10 | 20 33 1·75 | 21 15 7·5 | ·8775232 | 3 16·8 | 28 50 16·0 | 2 27 31·8 | ·859 |
| 11 | 20 37 26·87 | 20 56 38·0 | ·8732315 | 3 17·3 | 30 26 10·9 | 2 23 33·6 | ·859 |
| 12 | 20 41 49·60 | 20 37 41·2 | ·8688940 | 3 17·7 | 32 2 7·5 | 2 19 28·7 | ·859 |
| 13 | 20 46 9·90 | 20 18 17·8 | ·8645103 | 3 18·0 | 33 38 5·7 | 2 15 17·1 | ·859 |
| 14 | 20 50 27·74 | 19 58 28·7 | ·8600796 | 3 18·4 | 35 14 5·5 | 2 10 59·2 | ·859 |
| 15 | 20 54 43·07 | 19 38 14·6 | ·8556017 | 3 18·8 | 36 50 7·0 | 2 6 35·0 | ·859 |
| 16 | 20 58 55·87 | 19 17 36·5 | ·8510759 | 3 19·1 | 38 26 10·1 | 2 2 4·7 | ·859 |
| 17 | 21 3 6·09 | 18 56 35·2 | ·8465019 | 3 19·3 | 40 2 14·8 | 1 57 28·7 | ·859 |
| 18 | 21 7 13·71 | 18 35 11·5 | ·8418792 | 3 19·5 | 41 38 21·2 | 1 52 47·1 | ·859 |
| 19 | 21 11 18·69 | 18 13 26·4 | ·8372070 | 3 19·6 | 43 14 29·3 | 1 48 0·0 | ·859 |
| 20 | 21 15 20·99 | 17 51 20·8 | ·8324845 | 3 19·6 | 44 50 39·0 | 1 43 7·8 | ·859 |
| 21 | 21 19 20·59 | 17 28 55·4 | ·8277111 | 3 19·7 | 46 26 50·4 | 1 38 10·7 | ·858 |
| 22 | 21 23 17·45 | 17 6 11·3 | ·8228859 | 3 19·7 | 48 3 3·6 | 1 33 8·8 | ·858 |
| 23 | 21 27 11·53 | 16 43 9·3 | ·8180082 | 3 19·7 | 49 39 18·5 | 1 28 2·5 | ·858 |
| 24 | 21 31 2·80 | 16 19 50·5 | ·8130771 | 3 19·6 | 51 15 35·1 | 1 22 51·8 | ·858 |
| 25 | 21 34 51·23 | 15 56 15·6 | ·8080918 | 3 19·4 | 52 51 53·4 | 1 17 37·2 | ·858 |
| 26 | 21 38 36·77 | 15 32 25·7 | ·8030515 | 3 19·2 | 54 28 13·5 | 1 12 18·8 | ·858 |
| 27 | 21 42 19·38 | 15 8 21·8 | ·7979554 | 3 19·0 | 56 4 35·3 | 1 6 56·8 | ·858 |
| 28 | 21 45 59·00 | 14 44 4·8 | ·7928028 | 3 18·7 | 57 40 59·0 | 1 1 31·6 | ·858 |
| 29 | 21 49 35·59 | 14 19 35·7 | ·7875928 | 3 18·4 | 59 17 24·3 | 0 56 3·4 | ·858 |
| 30 | 21 53 9·09 | 13 54 55·6 | ·7823249 | 3 18·0 | 60 53 51·5 | 0 50 32·4 | ·858 |
| 31 | 21 56 39·43 | 13 30 5·5 | ·7769982 | 3 17·5 | 62 30 20·4 | 0 44 58·9 | ·858 |
| 32 | 22 0 6·57 | S. 13 5 6·5 | 9·7716121 | 3 17·0 | 64 6 51·1 | S. 0 39 23·1 | 9·858 |

# DECEMBER, 1845.

At Transit over the Meridian of Greenwich.

| Day of the Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 19 52 13 ·56 | +11 ·89 | 0 ·73 | S. 23 36 57 ·2 | +33 ·9 | 10 ·1 | 10 ·5 |
| 2 | 19 56 57 ·94 | 11 ·81 | 0 ·73 | 23 23 5 ·5 | 35 ·4 | 10 ·2 | 10 ·6 |
| 3 | 20 1 40 ·39 | 11 ·73 | 0 ·74 | 23 8 39 ·4 | 36 ·8 | 10 ·3 | 10 ·7 |
| 4 | 20 6 20 ·80 | 11 ·64 | 0 ·75 | 22 53 39 ·7 | 38 ·2 | 10 ·4 | 10 ·8 |
| 5 | 20 10 59 ·16 | 11 ·55 | 0 ·76 | 22 38 7 ·1 | 39 ·5 | 10 ·5 | 10 ·9 |
| 6 | 20 15 35 ·39 | 11 ·46 | 0 ·76 | 22 22 2 ·4 | 40 ·8 | 10 ·6 | 11 ·0 |
| 7 | 20 20 9 ·47 | 11 ·37 | 0 ·77 | 22 5 26 ·2 | 42 ·1 | 10 ·7 | 11 ·1 |
| 8 | 20 24 41 ·30 | 11 ·28 | 0 ·77 | 21 48 19 ·5 | 43 ·4 | 10 ·8 | 11 ·2 |
| 9 | 20 29 10 ·88 | 11 ·18 | 0 ·78 | 21 30 43 ·0 | 44 ·6 | 10 ·9 | 11 ·3 |
| 10 | 20 33 38 ·12 | 11 ·09 | 0 ·78 | 21 12 37 ·6 | 45 ·8 | 11 ·0 | 11 ·4 |
| 11 | 20 38 3 ·00 | 10 ·99 | 0 ·79 | 20 54 3 ·9 | 47 ·0 | 11 ·1 | 11 ·5 |
| 12 | 20 42 25 ·48 | 10 ·89 | 0 ·79 | 20 35 3 ·1 | 48 ·1 | 11 ·2 | 11 ·6 |
| 13 | 20 46 45 ·52 | 10 ·78 | 0 ·79 | 20 15 35 ·7 | 49 ·2 | 11 ·3 | 11 ·7 |
| 14 | 20 51 3 ·07 | 10 ·68 | 0 ·80 | 19 55 42 ·9 | 50 ·2 | 11 ·3 | 11 ·8 |
| 15 | 20 55 18 ·11 | 10 ·57 | 0 ·80 | 19 35 25 ·1 | 51 ·2 | 11 ·5 | 12 ·0 |
| 16 | 20 59 30 ·58 | 10 ·47 | 0 ·81 | 19 14 43 ·5 | 52 ·2 | 11 ·6 | 12 ·1 |
| 17 | 21 3 40 ·51 | 10 ·36 | 0 ·82 | 18 53 38 ·9 | 53 ·2 | 11 ·7 | 12 ·2 |
| 18 | 21 7 47 ·79 | 10 ·25 | 0 ·83 | 18 32 12 ·0 | 54 ·1 | 11 ·8 | 12 ·3 |
| 19 | 21 11 52 ·43 | 10 ·14 | 0 ·84 | 18 10 23 ·9 | 54 ·9 | 12 ·0 | 12 ·5 |
| 20 | 21 15 54 ·37 | 10 ·03 | 0 ·85 | 17 48 15 ·5 | 55 ·8 | 12 ·1 | 12 ·6 |
| 21 | 21 19 53 ·61 | 9 ·91 | 0 ·85 | 17 25 47 ·4 | 56 ·6 | 12 ·2 | 12 ·7 |
| 22 | 21 23 50 ·08 | 9 ·80 | 0 ·86 | 17 3 0 ·8 | 57 ·3 | 12 ·3 | 12 ·8 |
| 23 | 21 27 43 ·77 | 9 ·68 | 0 ·87 | 16 39 56 ·4 | 58 ·0 | 12 ·5 | 13 ·0 |
| 24 | 21 31 34 ·63 | 9 ·56 | 0 ·87 | 16 16 35 ·4 | 58 ·7 | 12 ·6 | 13 ·1 |
| 25 | 21 35 22 ·64 | 9 ·44 | 0 ·88 | 15 52 58 ·5 | 59 ·3 | 12 ·8 | 13 ·3 |
| 26 | 21 39 7 ·74 | 9 ·32 | 0 ·89 | 15 29 6 ·8 | 59 ·9 | 13 ·0 | 13 ·5 |
| 27 | 21 42 49 ·90 | 9 ·19 | 0 ·90 | 15 5 1 ·3 | 60 ·5 | 13 ·1 | 13 ·6 |
| 28 | 21 46 29 ·06 | 9 ·07 | 0 ·92 | 14 40 42 ·9 | 61 ·0 | 13 ·3 | 13 ·8 |
| | 21 50 5 ·18 | 8 ·94 | 0 ·93 | 14 16 12 ·5 | 61 ·5 | 13 ·5 | 14 ·0 |
| | 21 53 38 ·19 | 8 ·81 | 0 ·94 | 13 51 31 ·3 | 61 ·9 | 13 ·6 | 14 ·1 |
| | 21 57 8 ·03 | 8 ·68 | 0 ·95 | 13 26 40 ·4 | 62 ·3 | 13 ·8 | 14 ·3 |
| 32 | 22 0 34 ·65 | +8 ·54 | 0 ·95 | S. 13 1 40 ·8 | +62 ·6 | 13 ·9 | 14 ·5 |

# JANUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 15 2 28·18 | S. 16 27 42·6 | 0·3012783 | 20 17·3 | 198 44 15·2 | N. 0 54 51·2 | 0·2084 |
| 2 | 15 5 1·77 | 16 38 48·4 | ·2994399 | 20 15·9 | 199 12 5·8 | 0 54 4·1 | ·2081 |
| 3 | 15 7 35·66 | 16 49 47·1 | ·2975864 | 20 14·6 | 199 39 58·4 | 0 53 16·8 | ·2075 |
| 4 | 15 10 9·83 | 17 0 38·7 | ·2957178 | 20 13·2 | 200 7 52·9 | 0 52 29·2 | ·2070 |
| 5 | 15 12 44·28 | 17 11 23·1 | ·2938339 | 20 11·8 | 200 35 49·4 | 0 51 41·3 | ·2074 |
| 6 | 15 15 19·01 | 17 22 0·2 | ·2919349 | 20 10·5 | 201 3 47·9 | 0 50 53·2 | ·2071 |
| 7 | 15 17 54·02 | 17 32 29·8 | ·2900206 | 20 9·1 | 201 31 48·4 | 0 50 4·8 | ·2068 |
| 8 | 15 20 29·31 | 17 42 51·9 | ·2880912 | 20 7·8 | 201 59 50·9 | 0 49 16·2 | ·2066 |
| 9 | 15 23 4·87 | 17 53 6·3 | ·2861467 | 20 6·4 | 202 27 55·4 | 0 48 27·3 | ·2063 |
| 10 | 15 25 40·70 | 18 3 13·0 | ·2841870 | 20 5·1 | 202 56 2·0 | 0 47 38·2 | ·2060 |
| 11 | 15 28 16·80 | 18 13 12·0 | ·2822124 | 20 3·8 | 203 24 10·7 | 0 46 48·8 | ·2057 |
| 12 | 15 30 53·16 | 18 23 3·2 | ·2802228 | 20 2·4 | 203 52 21·5 | 0 45 59·1 | ·2054 |
| 13 | 15 33 29·79 | 18 32 46·4 | ·2782183 | 20 1·1 | 204 20 34·4 | 0 45 9·2 | ·2051 |
| 14 | 15 36 6·68 | 18 42 21·6 | ·2761988 | 19 59·8 | 204 48 49·4 | 0 44 19·0 | ·2048 |
| 15 | 15 38 43·83 | 18 51 48·7 | ·2741645 | 19 58·4 | 205 17 6·6 | 0 43 28·6 | ·2044 |
| 16 | 15 41 21·24 | 19 1 7·6 | ·2721153 | 19 57·1 | 205 45 26·0 | 0 42 38·0 | ·2041 |
| 17 | 15 43 58·91 | 19 10 18·2 | ·2700512 | 19 55·8 | 206 13 47·5 | 0 41 47·1 | ·2038 |
| 18 | 15 46 36·84 | 19 19 20·5 | ·2679723 | 19 54·5 | 206 42 11·3 | 0 40 56·0 | ·2035 |
| 19 | 15 49 15·03 | 19 28 14·4 | ·2658787 | 19 53·2 | 207 10 37·3 | 0 40 4·6 | ·2032 |
| 20 | 15 51 53·48 | 19 36 59·9 | ·2637702 | 19 51·9 | 207 39 5·5 | 0 39 13·0 | ·2031 |
| 21 | 15 54 32·18 | 19 45 36·8 | ·2616468 | 19 50·6 | 208 7 36·0 | 0 38 21·2 | ·2030 |
| 22 | 15 57 11·14 | 19 54 5·1 | ·2595085 | 19 49·3 | 208 36 8·7 | 0 37 29·2 | ·2027 |
| 23 | 15 59 50·36 | 20 2 24·8 | ·2573551 | 19 48·1 | 209 4 43·8 | 0 36 36·9 | ·2024 |
| 24 | 16 2 29·83 | 20 10 35·8 | ·2551866 | 19 46·8 | 209 33 21·1 | 0 35 44·4 | ·2021 |
| 25 | 16 5 9·54 | 20 18 37·9 | ·2530028 | 19 45·5 | 210 2 0·8 | 0 34 51·7 | ·2018 |
| 26 | 16 7 49·50 | 20 26 31·2 | ·2508037 | 19 44·2 | 210 30 42·8 | 0 33 58·8 | ·2015 |
| 27 | 16 10 29·70 | 20 34 15·4 | ·2485891 | 19 42·9 | 210 59 27·2 | 0 33 5·6 | ·2012 |
| 28 | 16 13 10·14 | 20 41 50·5 | ·2463590 | 19 41·7 | 211 28 14·0 | 0 32 12·3 | ·2009 |
| 29 | 16 15 50·81 | 20 49 16·5 | ·2441132 | 19 40·4 | 211 57 3·1 | 0 31 18·7 | ·2006 |
| 30 | 16 18 31·70 | 20 56 33·4 | ·2418518 | 19 39·2 | 212 25 54·7 | 0 30 24·9 | ·2003 |
| 31 | 16 21 12·81 | 21 3 41·1 | ·2395747 | 19 37·9 | 212 54 48·7 | 0 29 31·0 | ·2000 |
| 32 | 16 23 54·12 | S. 21 10 39·7 | 0·2372818 | 19 36·7 | 213 23 45·2 | N. 0 28 36·8 | 0·1997 |

# JANUARY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 15 4 38 ·00 | + 6 ·40 | 0 ·15 | S. 16 37 5 ·9 | —27 ·6 | 2 ·2 | 4 ·3 |
| 15 7 11 ·70 | 6 ·41 | 0 ·15 | 16 48 5 ·1 | 27 ·3 | 2 ·2 | 4 ·3 |
| 15 9 45 ·68 | 6 ·42 | 0 ·15 | 16 58 57 ·2 | 27 ·0 | 2 ·2 | 4 ·3 |
| 15 12 19 ·94 | 6 ·43 | 0 ·15 | 17 9 42 ·1 | 26 ·7 | 2 ·2 | 4 ·3 |
| 15 14 54 ·48 | 6 ·44 | 0 ·16 | 17 20 19 ·7 | 26 ·4 | 2 ·3 | 4 ·4 |
| 15 17 29 ·29 | 6 ·46 | 0 ·16 | 17 30 49 ·9 | 26 ·1 | 2 ·3 | 4 ·4 |
| 15 20 4 ·39 | 6 ·47 | 0 ·16 | 17 41 12 ·6 | 25 ·8 | 2 ·3 | 4 ·4 |
| 15 22 39 ·77 | 6 ·48 | 0 ·16 | 17 51 27 ·7 | 25 ·5 | 2 ·3 | 4 ·4 |
| 15 25 15 ·41 | 6 ·49 | 0 ·16 | 18 1 35 ·1 | 25 ·1 | 2 ·3 | 4 ·4 |
| 15 27 51 ·32 | 6 ·50 | 0 ·16 | 18 11 34 ·8 | 24 ·8 | 2 ·3 | 4 ·5 |
| 15 30 27 ·49 | 6 ·51 | 0 ·16 | 18 21 26 ·7 | 24 ·5 | 2 ·3 | 4 ·5 |
| 15 33 3 ·93 | 6 ·52 | 0 ·16 | 18 31 10 ·7 | 24 ·2 | 2 ·3 | 4 ·5 |
| 15 35 40 ·63 | 6 ·53 | 0 ·16 | 18 40 46 ·7 | 23 ·8 | 2 ·3 | 4 ·5 |
| 15 38 17 ·59 | 6 ·55 | 0 ·16 | 18 50 14 ·7 | 23 ·5 | 2 ·3 | 4 ·5 |
| 15 40 54 ·82 | 6 ·56 | 0 ·17 | 18 59 34 ·4 | 23 ·2 | 2 ·4 | 4 ·6 |
| 15 43 32 ·30 | 6 ·57 | 0 ·17 | 19 8 45 ·9 | 22 ·8 | 2 ·4 | 4 ·6 |
| 15 46 10 ·05 | 6 ·58 | 0 ·17 | 19 17 49 ·1 | 22 ·5 | 2 ·4 | 4 ·6 |
| 15 48 48 ·05 | 6 ·59 | 0 ·17 | 19 26 44 ·0 | 22 ·1 | 2 ·4 | 4 ·6 |
| 15 51 26 ·31 | 6 ·60 | 0 ·17 | 19 35 30 ·4 | 21 ·8 | 2 ·4 | 4 ·7 |
| 15 54 4 ·82 | 6 ·61 | 0 ·17 | 19 44 8 ·3 | 21 ·4 | 2 ·4 | 4 ·7 |
| 15 56 43 ·60 | 6 ·62 | 0 ·17 | 19 52 37 ·7 | 21 ·0 | 2 ·4 | 4 ·7 |
| 15 59 22 ·63 | 6 ·63 | 0 ·17 | 20 0 58 ·5 | 20 ·7 | 2 ·4 | 4 ·7 |
| 16 2 1 ·91 | 6 ·64 | 0 ·17 | 20 9 10 ·5 | 20 ·3 | 2 ·4 | 4 ·7 |
| 16 4 41 ·44 | 6 ·65 | 0 ·18 | 20 17 13 ·8 | 20 ·0 | 2 ·5 | 4 ·8 |
| 16 7 21 ·21 | 6 ·66 | 0 ·18 | 20 25 8 ·2 | 19 ·6 | 2 ·5 | 4 ·8 |
| 16 10 1 ·23 | 6 ·67 | 0 ·18 | 20 32 53 ·6 | 19 ·2 | 2 ·5 | 4 ·8 |
| 16 12 41 ·49 | 6 ·68 | 0 ·18 | 20 40 29 ·9 | 18 ·8 | 2 ·5 | 4 ·8 |
| 16 15 21 ·98 | 6 ·69 | 0 ·18 | 20 47 57 ·2 | 18 ·4 | 2 ·5 | 4 ·9 |
| 16 18 2 ·69 | 6 ·70 | 0 ·18 | 20 55 15 ·3 | 18 ·1 | 2 ·5 | 4 ·9 |
| 16 20 43 ·61 | 6 ·71 | 0 ·18 | 21 2 24 ·3 | 17 ·7 | 2 ·5 | 4 ·9 |
| 16 23 24 ·75 | 6 ·72 | 0 ·18 | 21 9 24 ·2 | 17 ·3 | 2 ·5 | 4 ·9 |
| 16 26 6 ·08 | + 6 ·73 | 0 ·19 | S. 21 16 14 ·9 | —16 ·9 | 2 ·6 | 5 ·0 |

# FEBRUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Rad |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 16 23 54·12 | S. 21 10 39·7 | 0·2372818 | 19 36·7 | 213 23 45·2 | N. 0 28 36·8 | 0·19 |
| 2 | 16 26 35·63 | 21 17 29·0 | ·2349731 | 19 35·4 | 213 52 44·1 | 0 27 42·4 | ·19 |
| 3 | 16 29 17·33 | 21 24 9·0 | ·2326485 | 19 34·2 | 214 21 45·6 | 0 26 47·8 | ·19 |
| 4 | 16 31 59·21 | 21 30 39·5 | ·2303081 | 19 32·9 | 214 50 49·5 | 0 25 53·0 | ·19 |
| 5 | 16 34 41·27 | 21 37 0·5 | ·2279517 | 19 31·7 | 215 19 56·0 | 0 24 58·1 | ·19 |
| 6 | 16 37 23·49 | 21 43 11·9 | ·2255795 | 19 30·5 | 215 49 5·0 | 0 24 2·9 | ·19 |
| 7 | 16 40 5·87 | 21 49 13·6 | ·2231915 | 19 29·2 | 216 18 16·6 | 0 23 7·5 | ·19 |
| 8 | 16 42 48·39 | 21 55 5·8 | ·2207877 | 19 28·0 | 216 47 30·8 | 0 22 12·0 | ·19 |
| 9 | 16 45 31·06 | 22 0 48·3 | ·2183683 | 19 26·8 | 217 16 47·5 | 0 21 16·3 | ·19 |
| 10 | 16 48 13·86 | 22 6 21·1 | ·2159333 | 19 25·6 | 217 46 6·9 | 0 20 20·4 | ·19 |
| 11 | 16 50 56·78 | 22 11 44·2 | ·2134828 | 19 24·3 | 218 15 28·9 | 0 19 24·3 | ·19 |
| 12 | 16 53 39·83 | 22 16 57·5 | ·2110167 | 19 23·1 | 218 44 53·6 | 0 18 28·1 | ·19 |
| 13 | 16 56 22·99 | 22 22 1·1 | ·2085351 | 19 21·9 | 219 14 20·9 | 0 17 31·7 | ·19 |
| 14 | 16 59 6·26 | 22 26 54·8 | ·2060381 | 19 20·7 | 219 43 50·9 | 0 16 35·1 | ·19 |
| 15 | 17 1 49·64 | 22 31 38·7 | ·2035257 | 19 19·4 | 220 13 23·6 | 0 15 38·4 | ·19 |
| 16 | 17 4 33·11 | 22 36 12·7 | ·2009979 | 19 18·2 | 220 42 59·0 | 0 14 41·5 | ·19 |
| 17 | 17 7 16·68 | 22 40 36·8 | ·1984548 | 19 17·0 | 221 12 37·1 | 0 13 44·5 | ·19 |
| 18 | 17 10 0·33 | 22 44 51·0 | ·1958963 | 19 15·8 | 221 42 18·0 | 0 12 47·3 | ·19 |
| 19 | 17 12 44·07 | 22 48 55·2 | ·1933223 | 19 14·6 | 222 12 1·7 | 0 11 50·0 | ·19 |
| 20 | 17 15 27·88 | 22 52 49·4 | ·1907327 | 19 13·4 | 222 41 48·1 | 0 10 52·5 | ·19 |
| 21 | 17 18 11·77 | 22 56 33·7 | ·1881274 | 19 12·2 | 223 11 37·3 | 0 9 54·9 | ·19 |
| 22 | 17 20 55·72 | 23 0 8·0 | ·1855062 | 19 11·0 | 223 41 29·3 | 0 8 57·2 | ·19 |
| 23 | 17 23 39·73 | 23 3 32·2 | ·1828692 | 19 9·8 | 224 11 24·2 | 0 7 59·3 | ·19 |
| 24 | 17 26 23·78 | 23 6 46·5 | ·1802163 | 19 8·6 | 224 41 21·9 | 0 7 1·3 | ·19 |
| 25 | 17 29 7·86 | 23 9 50·8 | ·1775474 | 19 7·3 | 225 11 22·4 | 0 6 3·2 | ·19 |
| 26 | 17 31 51·97 | 23 12 45·0 | ·1748623 | 19 6·1 | 225 41 25·8 | 0 5 5·0 | ·19 |
| 27 | 17 34 36·09 | 23 15 29·3 | ·1721608 | 19 4·9 | 226 11 32·1 | 0 4 6·6 | ·19 |
| 28 | 17 37 20·22 | 23 18 3·5 | ·1694430 | 19 3·7 | 226 41 41·3 | 0 3 8·2 | ·19 |
| 29 | 17 40 4·34 | S. 23 20 27·8 | 0·1667087 | 19 2·5 | 227 11 53·4 | N. 0 2 9·6 | 0·19 |

# FEBRUARY, 1845.

At Transit over the Meridian of Greenwich.

| *pparent* Right cension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 26 6 ·08 | + 6 ·73 | 0 ·19 | S. 21 16 14 ·9 | —16 ·9 | 2 ·6 | 5 ·0 |
| 28 47 ·61 | 6 ·73 | 0 ·19 | 21 22 56 ·2 | 16 ·5 | 2 ·6 | 5 ·0 |
| 31 29 ·31 | 6 ·74 | 0 ·19 | 21 29 28 ·1 | 16 ·1 | 2 ·6 | 5 ·0 |
| 34 11 ·20 | 6 ·75 | 0 ·19 | 21 35 50 ·5 | 15 ·7 | 2 ·6 | 5 ·0 |
| 36 53 ·25 | 6 ·76 | 0 ·19 | 21 42 3 ·4 | 15 ·3 | 2 ·6 | 5 ·1 |
| 39 35 ·46 | 6 ·76 | 0 ·19 | 21 48 6 ·7 | 14 ·9 | 2 ·6 | 5 ·1 |
| 42 17 ·82 | 6 ·77 | 0 ·19 | 21 54 0 ·3 | 14 ·5 | 2 ·6 | 5 ·1 |
| 45 0 ·32 | 6 ·77 | 0 ·19 | 21 59 44 ·3 | 14 ·1 | 2 ·7 | 5 ·2 |
| 47 42 ·96 | 6 ·78 | 0 ·19 | 22 5 18 ·7 | 13 ·7 | 2 ·7 | 5 ·2 |
| 50 25 ·72 | 6 ·78 | 0 ·19 | 22 10 43 ·4 | 13 ·3 | 2 ·7 | 5 ·2 |
| 53 8 ·61 | 6 ·79 | 0 ·19 | 22 15 58 ·3 | 12 ·9 | 2 ·7 | 5 ·2 |
| 55 51 ·61 | 6 ·79 | 0 ·19 | 22 21 3 ·5 | 12 ·5 | 2 ·7 | 5 ·3 |
| 58 34 ·72 | 6 ·80 | 0 ·19 | 22 25 58 ·8 | 12 ·1 | 2 ·7 | 5 ·3 |
| 1 17 ·94 | 6 ·80 | 0 ·19 | 22 30 44 ·4 | 11 ·7 | 2 ·7 | 5 ·3 |
| 4 1 ·25 | 6 ·81 | 0 ·20 | 22 35 20 ·1 | 11 ·3 | 2 ·8 | 5 ·4 |
| 6 44 ·66 | 6 ·81 | 0 ·20 | 22 39 45 ·9 | 10 ·9 | 2 ·8 | 5 ·4 |
| 9 28 ·16 | 6 ·81 | 0 ·20 | 22 44 1 ·8 | 10 ·5 | 2 ·8 | 5 ·4 |
| 12 11 ·75 | 6 ·82 | 0 ·20 | 22 48 7 ·8 | 10 ·0 | 2 ·8 | 5 ·5 |
| 14 55 ·41 | 6 ·82 | 0 ·20 | 22 52 3 ·8 | 9 ·6 | 2 ·8 | 5 ·5 |
| 17 39 ·14 | 6 ·82 | 0 ·20 | 22 55 49 ·8 | 9 ·2 | 2 ·8 | 5 ·5 |
| 20 22 ·95 | 6 ·83 | 0 ·21 | 22 59 25 ·9 | 8 ·8 | 2 ·9 | 5 ·6 |
| 23 6 ·81 | 6 ·83 | 0 ·21 | 23 2 52 ·0 | 8 ·4 | 2 ·9 | 5 ·6 |
| 25 50 ·71 | 6 ·83 | 0 ·21 | 23 6 8 ·1 | 8 ·0 | 2 ·9 | 5 ·6 |
| 28 34 ·65 | 6 ·83 | 0 ·21 | 23 9 14 ·3 | 7 ·6 | 2 ·9 | 5 ·7 |
| 31 18 ·62 | 6 ·83 | 0 ·21 | 23 12 10 ·4 | 7 ·1 | 2 ·9 | 5 ·7 |
| 34 2 ·60 | 6 ·83 | 0 ·21 | 23 14 56 ·5 | 6 ·7 | 2 ·9 | 5 ·7 |
| 36 46 ·59 | 6 ·83 | 0 ·22 | 23 17 32 ·7 | 6 ·3 | 3 ·0 | 5 ·8 |
| 39 30 ·58 | 6 ·83 | 0 ·22 | 23 19 58 ·9 | 5 ·9 | 3 ·0 | 5 ·8 |
| 42 14 ·54 | + 6 ·83 | 0 ·22 | S. 23 22 15 ·1 | — 5 ·5 | 3 ·0 | 5 ·8 |

# MARCH, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *N* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 17 40 4·34 | S. 23 20 27·8 | 0·1667087 | 19 2·5 | 227 11 53·4 | N. 0 2 9·6 | 0·19 |
| 2 | 17 42 48·44 | 23 22 42·0 | ·1639577 | 19 1·3 | 227 42 8·5 | 0 1 10·9 | ·19 |
| 3 | 17 45 32·51 | 23 24 46·4 | ·1611900 | 19 0·1 | 228 12 26·5 | N. 0 0 12·1 | ·18 |
| 4 | 17 48 16·53 | 23 26 40·8 | ·1584055 | 18 58·9 | 228 42 47·4 | S. 0 0 46·7 | ·18 |
| 5 | 17 51 0·49 | 23 28 25·3 | ·1556047 | 18 57·7 | 229 13 11·3 | 0 1 45·7 | ·18 |
| 6 | 17 53 44·37 | 23 30 0·0 | ·1527874 | 18 56·5 | 229 43 38·2 | 0 2 44·7 | ·18 |
| 7 | 17 56 28·17 | 23 31 24·7 | ·1499536 | 18 55·3 | 230 14 8·1 | 0 3 43·9 | ·18 |
| 8 | 17 59 11·86 | 23 32 39·7 | ·1471033 | 18 54·0 | 230 44 41·0 | 0 4 43·1 | ·18 |
| 9 | 18 1 55·44 | 23 33 44·8 | ·1442365 | 18 52·8 | 231 15 16·9 | 0 5 42·4 | ·18 |
| 10 | 18 4 38·91 | 23 34 40·2 | ·1413534 | 18 51·6 | 231 45 55·9 | 0 6 41·7 | ·18 |
| 11 | 18 7 22·24 | 23 35 25·9 | ·1384540 | 18 50·4 | 232 16 38·0 | 0 7 41·2 | ·18 |
| 12 | 18 10 5·42 | 23 36 1·9 | ·1355384 | 18 49·2 | 232 47 23·1 | 0 8 40·6 | ·18 |
| 13 | 18 12 48·45 | 23 36 28·3 | ·1326068 | 18 47·9 | 233 18 11·3 | 0 9 40·2 | ·18 |
| 14 | 18 15 31·32 | 23 36 45·1 | ·1296591 | 18 46·7 | 233 49 2·6 | 0 10 39·8 | ·18 |
| 15 | 18 18 14·03 | 23 36 52·3 | ·1266954 | 18 45·5 | 234 19 57·0 | 0 11 39·5 | ·18 |
| 16 | 18 20 56·56 | 23 36 50·1 | ·1237157 | 18 44·3 | 234 50 54·6 | 0 12 39·2 | ·18 |
| 17 | 18 23 38·91 | 23 36 38·4 | ·1207201 | 18 43·0 | 235 21 55·3 | 0 13 38·9 | ·18 |
| 18 | 18 26 21·07 | 23 36 17·3 | ·1177084 | 18 41·8 | 235 52 59·2 | 0 14 38·7 | ·18 |
| 19 | 18 29 3·03 | 23 35 46·9 | ·1146807 | 18 40·5 | 236 24 6·2 | 0 15 38·5 | ·18 |
| 20 | 18 31 44·79 | 23 35 7·2 | ·1116367 | 18 39·3 | 236 55 16·4 | 0 16 38·3 | ·18 |
| 21 | 18 34 26·33 | 23 34 18·3 | ·1085764 | 18 38·0 | 237 26 29·7 | 0 17 38·2 | ·18 |
| 22 | 18 37 7·65 | 23 33 20·3 | ·1054997 | 18 36·8 | 237 57 46·3 | 0 18 38·1 | ·18 |
| 23 | 18 39 48·74 | 23 32 13·1 | ·1024065 | 18 35·5 | 238 29 6·1 | 0 19 37·9 | ·18 |
| 24 | 18 42 29·59 | 23 30 57·0 | ·0992966 | 18 34·2 | 239 0 29·0 | 0 20 37·8 | ·18 |
| 25 | 18 45 10·19 | 23 29 31·9 | ·0961700 | 18 33·0 | 239 31 55·2 | 0 21 37·7 | ·18 |
| 26 | 18 47 50·53 | 23 27 58·0 | ·0930265 | 18 31·7 | 240 3 24·7 | 0 22 37·6 | ·18 |
| 27 | 18 50 30·59 | 23 26 15·4 | ·0898660 | 18 30·4 | 240 34 57·4 | 0 23 37·5 | ·18 |
| 28 | 18 53 10·36 | 23 24 24·1 | ·0866882 | 18 29·1 | 241 6 33·3 | 0 24 37·3 | ·18 |
| 29 | 18 55 49·83 | 23 22 24·3 | ·0834931 | 18 27·9 | 241 38 12·5 | 0 25 37·2 | ·18 |
| 30 | 18 58 28·98 | 23 20 16·1 | ·0802805 | 18 26·6 | 242 9 55·0 | 0 26 37·0 | ·17 |
| 31 | 19 1 7·79 | 23 17 59·5 | ·0770505 | 18 25·3 | 242 41 40·7 | 0 27 36·8 | ·17 |
| 32 | 19 3 46·26 | S. 23 15 34·7 | 0·0738030 | 18 24·0 | 243 13 29·8 | S. 0 28 36·5 | 0·17 |

# MARCH, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 17 42 14 ·54 | + 6 ·83 | 0 ·22 | S. 23 22 15 ·1 | — 5 ·5 | 3 ·0 | 5 ·8 |
| 17 44 58 ·48 | 6 ·83 | 0 ·22 | 23 24 21 ·4 | 5 ·1 | 3 ·0 | 5 ·9 |
| 17 47 42 ·37 | 6 ·83 | 0 ·22 | 23 26 17 ·8 | 4 ·6 | 3 ·0 | 5 ·9 |
| 17 50 26 ·21 | 6 ·82 | 0 ·23 | 23 28 4 ·3 | 4 ·2 | 3 ·1 | 6 ·0 |
| 17 53 9 ·97 | 6 ·82 | 0 ·23 | 23 29 40 ·9 | 3 ·8 | 3 ·1 | 6 ·0 |
| 17 55 53 ·65 | 6 ·82 | 0 ·23 | 23 31 7 ·7 | 3 ·4 | 3 ·1 | 6 ·0 |
| 17 58 37 ·23 | 6 ·81 | 0 ·23 | 23 32 24 ·6 | 3 ·0 | 3 ·2 | 6 ·1 |
| 18 1 20 ·70 | 6 ·81 | 0 ·23 | 23 33 31 ·8 | 2 ·6 | 3 ·2 | 6 ·1 |
| 18 4 4 ·05 | 6 ·80 | 0 ·23 | 23 34 29 ·2 | 2 ·2 | 3 ·2 | 6 ·2 |
| 18 6 47 ·27 | 6 ·80 | 0 ·23 | 23 35 16 ·9 | 1 ·8 | 3 ·2 | 6 ·2 |
| 18 9 30 ·34 | 6 ·79 | 0 ·23 | 23 35 55 ·0 | 1 ·4 | 3 ·2 | 6 ·2 |
| 18 12 13 ·27 | 6 ·79 | 0 ·24 | 23 36 23 ·4 | 1 ·0 | 3 ·3 | 6 ·3 |
| 18 14 56 ·04 | 6 ·78 | 0 ·24 | 23 36 42 ·3 | 0 ·6 | 3 ·3 | 6 ·3 |
| 18 17 38 ·64 | 6 ·77 | 0 ·24 | 23 36 51 ·6 | — 0 ·2 | 3 ·3 | 6 ·4 |
| 18 20 21 ·08 | 6 ·76 | 0 ·24 | 23 36 51 ·4 | + 0 ·2 | 3 ·3 | 6 ·4 |
| 18 23 3 ·33 | 6 ·76 | 0 ·25 | 23 36 41 ·8 | 0 ·6 | 3 ·4 | 6 ·5 |
| 18 25 45 ·39 | 6 ·75 | 0 ·25 | 23 36 22 ·8 | 1 ·0 | 3 ·4 | 6 ·5 |
| 18 28 27 ·26 | 6 ·74 | 0 ·25 | 23 35 54 ·4 | 1 ·4 | 3 ·4 | 6 ·6 |
| 18 31 8 ·92 | 6 ·73 | 0 ·25 | 23 35 16 ·8 | 1 ·8 | 3 ·4 | 6 ·6 |
| 18 33 50 ·37 | 6 ·72 | 0 ·25 | 23 34 30 ·0 | 2 ·1 | 3 ·4 | 6 ·6 |
| 18 36 31 ·60 | 6 ·71 | 0 ·26 | 23 33 34 ·0 | 2 ·5 | 3 ·5 | 6 ·7 |
| 18 39 12 ·60 | 6 ·70 | 0 ·26 | 23 32 29 ·0 | 2 ·9 | 3 ·5 | 6 ·7 |
| 18 41 53 ·36 | 6 ·69 | 0 ·26 | 23 31 14 ·9 | 3 ·3 | 3 ·5 | 6 ·8 |
| 18 44 33 ·88 | 6 ·68 | 0 ·26 | 23 29 51 ·9 | 3 ·6 | 3 ·5 | 6 ·8 |
| 18 47 14 ·14 | 6 ·67 | 0 ·26 | 23 28 20 ·1 | 4 ·0 | 3 ·6 | 6 ·9 |
| 18 49 54 ·12 | 6 ·66 | 0 ·26 | 23 26 39 ·5 | 4 ·4 | 3 ·6 | 6 ·9 |
| 18 52 33 ·82 | 6 ·65 | 0 ·26 | 23 24 50 ·3 | 4 ·7 | 3 ·6 | 7 ·0 |
| 18 55 13 ·22 | 6 ·64 | 0 ·26 | 23 22 52 ·6 | 5 ·1 | 3 ·6 | 7 ·0 |
| 18 57 52 ·30 | 6 ·62 | 0 ·27 | 23 20 46 ·4 | 5 ·4 | 3 ·7 | 7 ·1 |
| 19 0 31 ·05 | 6 ·61 | 0 ·27 | 23 18 31 ·9 | 5 ·8 | 3 ·7 | 7 ·1 |
| 19 3 9 ·45 | 6 ·59 | 0 ·27 | 23 16 9 ·1 | 6 ·1 | 3 ·7 | 7 ·2 |
| 19 5 47 ·50 | + 6 ·58 | 0 ·27 | S. 23 13 38 ·2 | + 6 ·5 | 3 ·7 | 7 ·2 |

# APRIL, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *N* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 19 3 46·26 | S. 23 15 34·7 | 0·0738030 | 18 24·0 | 243 13 29·8 | S. 0 28 36·5 | 0·17 |
| 2 | 19 6 24·37 | 23 13 1·8 | ·0705380 | 18 22·6 | 243 45 22·2 | 0 29 36·2 | ·17 |
| 3 | 19 9 2·10 | 23 10 20·8 | ·0672555 | 18 21·3 | 244 17 17·9 | 0 30 35·8 | ·17 |
| 4 | 19 11 39·43 | 23 7 32·0 | ·0639555 | 18 20·0 | 244 49 16·9 | 0 31 35·4 | ·17 |
| 5 | 19 14 16·36 | 23 4 35·5 | ·0606381 | 18 18·7 | 245 21 19·3 | 0 32 34·9 | ·17 |
| 6 | 19 16 52·87 | 23 1 31·3 | ·0573033 | 18 17·3 | 245 53 25·0 | 0 33 34·3 | ·17 |
| 7 | 19 19 28·94 | 22 58 19·7 | ·0539514 | 18 16·0 | 246 25 34·0 | 0 34 33·7 | ·17 |
| 8 | 19 22 4·56 | 22 55 0·7 | ·0505823 | 18 14·6 | 246 57 46·4 | 0 35 33·0 | ·17 |
| 9 | 19 24 39·73 | 22 51 34·4 | ·0471962 | 18 13·3 | 247 30 2·2 | 0 36 32·1 | ·17 |
| 10 | 19 27 14·43 | 22 48 1·0 | ·0437933 | 18 11·9 | 248 2 21·4 | 0 37 31·2 | ·17 |
| 11 | 19 29 48·65 | 22 44 20·6 | ·0403735 | 18 10·5 | 248 34 44·0 | 0 38 30·2 | ·17 |
| 12 | 19 32 22·39 | 22 40 33·3 | ·0369369 | 18 9·1 | 249 7 9·9 | 0 39 29·1 | ·17 |
| 13 | 19 34 55·64 | 22 36 39·3 | ·0334836 | 18 7·7 | 249 39 39·2 | 0 40 27·8 | ·17 |
| 14 | 19 37 28·39 | 22 32 38·7 | ·0300135 | 18 6·3 | 250 12 12·0 | 0 41 26·5 | ·17 |
| 15 | 19 40 0·64 | 22 28 31·6 | ·0265266 | 18 4·9 | 250 44 48·1 | 0 42 25·0 | ·17 |
| 16 | 19 42 32·37 | 22 24 18·1 | ·0230229 | 18 3·5 | 251 17 27·6 | 0 43 23·4 | ·17 |
| 17 | 19 45 3·58 | 22 19 58·5 | ·0195023 | 18 2·1 | 251 50 10·6 | 0 44 21·7 | ·17 |
| 18 | 19 47 34·25 | 22 15 32·8 | ·0159649 | 18 0·6 | 252 22 56·9 | 0 45 19·8 | ·17 |
| 19 | 19 50 4·38 | 22 11 1·2 | ·0124105 | 17 59·2 | 252 55 46·7 | 0 46 17·8 | ·17 |
| 20 | 19 52 33·96 | 22 6 23·8 | ·0088389 | 17 57·8 | 253 28 39·9 | 0 47 15·6 | ·17 |
| 21 | 19 55 2·98 | 22 1 40·9 | ·0052500 | 17 56·3 | 254 1 36·5 | 0 48 13·3 | ·17 |
| 22 | 19 57 31·44 | 21 56 52·5 | 0·0016437 | 17 54·8 | 254 34 36·5 | 0 49 10·9 | ·17 |
| 23 | 19 59 59·31 | 21 51 58·9 | 9·9980196 | 17 53·3 | 255 7 40·0 | 0 50 8·2 | ·17 |
| 24 | 20 2 26·59 | 21 47 0·3 | ·9943778 | 17 51·8 | 255 40 46·9 | 0 51 5·4 | ·17 |
| 25 | 20 4 53·26 | 21 41 56·7 | ·9907179 | 17 50·3 | 256 13 57·2 | 0 52 2·4 | ·17 |
| 26 | 20 7 19·30 | 21 36 48·4 | ·9870398 | 17 48·8 | 256 47 10·9 | 0 52 59·2 | ·16 |
| 27 | 20 9 44·70 | 21 31 35·7 | ·9833435 | 17 47·3 | 257 20 28·1 | 0 53 55·8 | ·16 |
| 28 | 20 12 9·44 | 21 26 18·7 | ·9796289 | 17 45·7 | 257 53 48·8 | 0 54 52·2 | ·16 |
| 29 | 20 14 33·51 | 21 20 57·6 | ·9758960 | 17 44·2 | 258 27 12·8 | 0 55 48·4 | ·16 |
| 30 | 20 16 56·88 | 21 15 32·7 | ·9721449 | 17 42·7 | 259 0 40·3 | 0 56 44·4 | ·16 |
| 31 | 20 19 19·53 | S. 21 10 4·2 | 9·9683755 | 17 41·1 | 259 34 11·3 | S. 0 57 40·1 | 0·16 |

# APRIL, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 19 5 47·50 | + 6·58 | 0·27 | S. 23 13 38·2 | + 6·5 | 3·7 | 7·2 |
| 19 8 25·18 | 6·56 | 0·28 | 23 10 59·3 | 6·8 | 3·8 | 7·3 |
| 19 11 2·47 | 6·55 | 0·28 | 23 8 12·5 | 7·1 | 3·8 | 7·3 |
| 19 13 39·35 | 6·53 | 0·28 | 23 5 17·9 | 7·4 | 3·8 | 7·4 |
| 19 16 15·81 | 6·51 | 0·29 | 23 2 15·7 | 7·7 | 3·9 | 7·5 |
| 19 18 51·84 | 6·49 | 0·29 | 22 59 6·0 | 8·1 | 3·9 | 7·5 |
| 19 21 27·43 | 6·47 | 0·29 | 22 55 48·9 | 8·4 | 3·9 | 7·6 |
| 19 24 2·56 | 6·45 | 0·29 | 22 52 24·5 | 8·7 | 3·9 | 7·6 |
| 19 26 37·22 | 6·43 | 0·29 | 22 48 53·0 | 9·0 | 4·0 | 7·7 |
| 19 29 11·42 | 6·41 | 0·29 | 22 45 14·5 | 9·2 | 4·0 | 7·7 |
| 19 31 45·13 | 6·39 | 0·29 | 22 41 29·1 | 9·5 | 4·0 | 7·8 |
| 19 34 18·35 | 6·37 | 0·30 | 22 37 36·9 | 9·8 | 4·1 | 7·9 |
| 19 36 51·07 | 6·35 | 0·30 | 22 33 38·1 | 10·1 | 4·1 | 7·9 |
| 19 39 23·30 | 6·33 | 0·30 | 22 29 32·9 | 10·4 | 4·1 | 8·0 |
| 19 41 55·01 | 6·31 | 0·30 | 22 25 21·2 | 10·6 | 4·2 | 8·1 |
| 19 44 26·20 | 6·29 | 0·30 | 22 21 3·4 | 10·9 | 4·2 | 8·1 |
| 19 46 56·85 | 6·27 | 0·30 | 22 16 39·4 | 11·1 | 4·2 | 8·2 |
| 19 49 26·96 | 6·24 | 0·31 | 22 12 9·5 | 11·4 | 4·3 | 8·3 |
| 19 51 56·53 | 6·22 | 0·31 | 22 7 33·9 | 11·6 | 4·3 | 8·3 |
| 19 54 25·54 | 6·20 | 0·31 | 22 2 52·6 | 11·8 | 4·3 | 8·4 |
| 19 56 53·99 | 6·17 | 0·31 | 21 58 5·9 | 12·1 | 4·4 | 8·5 |
| 19 59 21·87 | 6·15 | 0·31 | 21 53 13·9 | 12·3 | 4·4 | 8·5 |
| 20 1 49·15 | 6·12 | 0·32 | 21 48 16·8 | 12·5 | 4·5 | 8·6 |
| 20 4 15·82 | 6·10 | 0·32 | 21 43 14·8 | 12·7 | 4·5 | 8·7 |
| 20 6 41·87 | 6·07 | 0·33 | 21 38 8·0 | 12·9 | 4·6 | 8·8 |
| 20 9 7·29 | 6·05 | 0·33 | 21 32 56·7 | 13·1 | 4·6 | 8·8 |
| 20 11 32·05 | 6·02 | 0·33 | 21 27 41·1 | 13·2 | 4·6 | 8·9 |
| 20 13 56·13 | 5·99 | 0·34 | 21 22 21·4 | 13·4 | 4·7 | 9·0 |
| 20 16 19·53 | 5·96 | 0·34 | 21 16 57·9 | 13·6 | 4·7 | 9·1 |
| 20 18 42·22 | 5·93 | 0·34 | 21 11 30·7 | 13·7 | 4·7 | 9·1 |
| 20 21 4·18 | + 5·90 | 0·34 | S. 21 6 0·0 | + 13·8 | 4·8 | 9·2 |

# MAY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 20 19 19·53 | S. 21 10 4·2 | 9·9683755 | 17 41·1 | 259 34 11·3 | S. 0 57 40·1 | 0·167 |
| 2 | 20 21 41·45 | 21 4 32·3 | ·9645879 | 17 39·5 | 260 7 45·7 | 0 58 35·6 | ·167 |
| 3 | 20 24 2·62 | 20 58 57·2 | ·9607821 | 17 37·9 | 260 41 23·5 | 0 59 30·9 | ·167 |
| 4 | 20 26 23·03 | 20 53 19·1 | ·9569582 | 17 36·3 | 261 15 4·8 | 1 0 25·9 | ·166 |
| 5 | 20 28 42·66 | 20 47 38·1 | ·9531165 | 17 34·6 | 261 48 49·5 | 1 1 20·7 | ·166 |
| 6 | 20 31 1·48 | 20 41 54·6 | ·9492570 | 17 33·0 | 262 22 37·6 | 1 2 15·2 | ·166 |
| 7 | 20 33 19·49 | 20 36 8·8 | ·9453800 | 17 31·4 | 262 56 29·2 | 1 3 9·4 | ·165 |
| 8 | 20 35 36·66 | 20 30 20·8 | ·9414857 | 17 29·7 | 263 30 24·2 | 1 4 3·3 | ·165 |
| 9 | 20 37 52·99 | 20 24 30·9 | ·9375743 | 17 28·0 | 264 4 22·7 | 1 4 57·0 | ·164 |
| 10 | 20 40 8·47 | 20 18 39·3 | ·9336458 | 17 26·3 | 264 38 24·5 | 1 5 50·3 | ·164 |
| 11 | 20 42 23·07 | 20 12 46·2 | ·9297004 | 17 24·6 | 265 12 29·8 | 1 6 43·4 | ·164 |
| 12 | 20 44 36·80 | 20 6 51·8 | ·9257383 | 17 22·9 | 265 46 38·5 | 1 7 36·2 | ·163 |
| 13 | 20 46 49·63 | 20 0 56·3 | ·9217595 | 17 21·2 | 266 20 50·6 | 1 8 28·6 | ·163 |
| 14 | 20 49 1·57 | 19 54 59·9 | ·9177641 | 17 19·4 | 266 55 6·1 | 1 9 20·7 | ·163 |
| 15 | 20 51 12·59 | 19 49 2·8 | ·9137523 | 17 17·6 | 267 29 25·0 | 1 10 12·5 | ·162 |
| 16 | 20 53 22·68 | 19 43 5·2 | ·9097241 | 17 15·9 | 268 3 47·3 | 1 11 3·9 | ·162 |
| 17 | 20 55 31·84 | 19 37 7·4 | ·9056795 | 17 14·1 | 268 38 13·0 | 1 11 55·0 | ·162 |
| 18 | 20 57 40·04 | 19 31 9·7 | ·9016183 | 17 12·2 | 269 12 42·1 | 1 12 45·7 | ·161 |
| 19 | 20 59 47·27 | 19 25 12·2 | ·8975405 | 17 10·4 | 269 47 14·5 | 1 13 36·1 | ·161 |
| 20 | 21 1 53·51 | 19 19 15·3 | ·8934460 | 17 8·5 | 270 21 50·3 | 1 14 26·1 | ·161 |
| 21 | 21 3 58·75 | 19 13 19·3 | ·8893348 | 17 6·7 | 270 56 29·5 | 1 15 15·7 | ·160 |
| 22 | 21 6 2·97 | 19 7 24·3 | ·8852068 | 17 4·8 | 271 31 12·0 | 1 16 5·0 | ·160 |
| 23 | 21 8 6·13 | 19 1 30·7 | ·8810619 | 17 2·9 | 272 5 57·8 | 1 16 53·9 | ·159 |
| 24 | 21 10 8·22 | 18 55 38·7 | ·8769001 | 17 1·0 | 272 40 46·9 | 1 17 42·3 | ·159 |
| 25 | 21 12 9·21 | 18 49 48·7 | ·8727214 | 16 59·1 | 273 15 39·4 | 1 18 30·4 | ·159 |
| 26 | 21 14 9·08 | 18 44 1·0 | ·8685260 | 16 57·1 | 273 50 35·2 | 1 19 18·1 | ·158 |
| 27 | 21 16 7·78 | 18 38 15·9 | ·8643140 | 16 55·1 | 274 25 34·2 | 1 20 5·4 | ·158 |
| 28 | 21 18 5·30 | 18 32 33·7 | ·8600855 | 16 53·1 | 275 0 36·6 | 1 20 52·2 | ·158 |
| 29 | 21 20 1·60 | 18 26 54·7 | ·8558408 | 16 51·1 | 275 35 42·2 | 1 21 38·6 | ·157 |
| 30 | 21 21 56·66 | 18 21 19·3 | ·8515801 | 16 49·1 | 276 10 51·0 | 1 22 24·6 | ·157 |
| 31 | 21 23 50·43 | 18 15 47·8 | ·8473039 | 16 47·0 | 276 46 3·1 | 1 23 10·1 | ·157 |
| 32 | 21 25 42·89 | S. 18 10 20·5 | 9·8430125 | 16 44·9 | 277 21 18·4 | S. 1 23 55·2 | 0·156 |

# MAY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 21 4 ·18 | + 5 ·90 | 0 ·34 | S. 21 6 0 ·0 | +13 ·8 | 4 ·8 | 9 ·2 |
| 23 25 ·39 | 5 ·87 | 0 ·34 | 21 0 26 ·1 | 14 ·0 | 4 ·8 | 9 ·3 |
| 25 45 ·85 | 5 ·84 | 0 ·35 | 20 54 49 ·1 | 14 ·1 | 4 ·9 | 9 ·4 |
| 28 5 ·53 | 5 ·80 | 0 ·35 | 20 49 9 ·2 | 14 ·2 | 4 ·9 | 9 ·5 |
| 30 24 ·41 | 5 ·77 | 0 ·35 | 20 43 26 ·8 | 14 ·3 | 5 ·0 | 9 ·6 |
| 32 42 ·48 | 5 ·74 | 0 ·35 | 20 37 42 ·0 | 14 ·4 | 5 ·0 | 9 ·6 |
| 34 59 ·72 | 5 ·70 | 0 ·35 | 20 31 54 ·9 | 14 ·5 | 5 ·0 | 9 ·7 |
| 37 16 ·13 | 5 ·67 | 0 ·36 | 20 26 5 ·9 | 14 ·6 | 5 ·1 | 9 ·8 |
| 39 31 ·68 | 5 ·63 | 0 ·36 | 20 20 15 ·2 | 14 ·6 | 5 ·1 | 9 ·9 |
| 41 46 ·36 | 5 ·59 | 0 ·36 | 20 14 22 ·9 | 14 ·7 | 5 ·2 | 10 ·0 |
| 44 0 ·17 | 5 ·56 | 0 ·36 | 20 8 29 ·2 | 14 ·8 | 5 ·2 | 10 ·1 |
| 46 13 ·10 | 5 ·52 | 0 ·37 | 20 2 34 ·4 | 14 ·8 | 5 ·3 | 10 ·2 |
| 48 25 ·12 | 5 ·48 | 0 ·37 | 19 56 38 ·7 | 14 ·8 | 5 ·3 | 10 ·3 |
| 50 36 ·23 | 5 ·44 | 0 ·38 | 19 50 42 ·2 | 14 ·9 | 5 ·4 | 10 ·4 |
| 52 46 ·43 | 5 ·41 | 0 ·38 | 19 44 45 ·2 | 14 ·9 | 5 ·4 | 10 ·5 |
| 54 55 ·69 | 5 ·37 | 0 ·39 | 19 38 47 ·9 | 14 ·9 | 5 ·5 | 10 ·6 |
| 57 4 ·00 | 5 ·33 | 0 ·39 | 19 32 50 ·5 | 14 ·9 | 5 ·5 | 10 ·7 |
| 59 11 ·34 | 5 ·29 | 0 ·39 | 19 26 53 ·4 | 14 ·9 | 5 ·6 | 10 ·8 |
| 1 17 ·71 | 5 ·24 | 0 ·39 | 19 20 56 ·8 | 14 ·8 | 5 ·6 | 10 ·9 |
| 3 23 ·07 | 5 ·20 | 0 ·40 | 19 15 0 ·9 | 14 ·8 | 5 ·7 | 11 ·0 |
| 5 27 ·42 | 5 ·16 | 0 ·40 | 19 9 6 ·1 | 14 ·8 | 5 ·7 | 11 ·1 |
| 7 30 ·73 | 5 ·12 | 0 ·41 | 19 3 12 ·5 | 14 ·7 | 5 ·8 | 11 ·2 |
| 9 32 ·97 | 5 ·07 | 0 ·41 | 18 57 20 ·5 | 14 ·6 | 5 ·8 | 11 ·3 |
| 11 34 ·12 | 5 ·02 | 0 ·41 | 18 51 30 ·4 | 14 ·5 | 5 ·9 | 11 ·4 |
| 13 34 ·16 | 4 ·98 | 0 ·42 | 18 45 42 ·4 | 14 ·4 | 6 ·0 | 11 ·5 |
| 15 33 ·04 | 4 ·93 | 0 ·42 | 18 39 57 ·0 | 14 ·3 | 6 ·0 | 11 ·6 |
| 17 30 ·75 | 4 ·88 | 0 ·43 | 18 34 14 ·3 | 14 ·2 | 6 ·1 | 11 ·7 |
| 19 27 ·26 | 4 ·83 | 0 ·43 | 18 28 34 ·8 | 14 ·1 | 6 ·1 | 11 ·8 |
| 21 22 ·52 | 4 ·78 | 0 ·43 | 18 22 58 ·8 | 13 ·9 | 6 ·2 | 12 ·0 |
| 23 16 ·52 | 4 ·72 | 0 ·44 | 18 17 26 ·6 | 13 ·8 | 6 ·3 | 12 ·1 |
| 25 9 ·22 | 4 ·67 | 0 ·44 | 18 11 58 ·5 | 13 ·6 | 6 ·3 | 12 ·2 |
| 27 0 ·58 | + 4 ·61 | 0 ·45 | S. 18 6 34 ·8 | +13 ·4 | 6 ·4 | 12 ·3 |

# JUNE, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 25 42·89 | S. 18 10 20·5 | 9·8430125 | 16 44·9 | 277 21 18·4 | S. 1 23 55·2 | 0 |
| 2 | 21 27 34·01 | 18 4 57·8 | ·8387064 | 16 42·8 | 277 56 36·9 | 1 24 39·8 | |
| 3 | 21 29 23·76 | 17 59 39·8 | ·8343861 | 16 40·7 | 278 31 58·6 | 1 25 24·0 | |
| 4 | 21 31 12·10 | 17 54 27·0 | ·8300522 | 16 38·6 | 279 7 23·4 | 1 26 7·6 | |
| 5 | 21 32 59·02 | 17 49 19·6 | ·8257053 | 16 36·4 | 279 42 51·5 | 1 26 50·8 | |
| 6 | 21 34 44·48 | 17 44 17·8 | ·8213460 | 16 34·2 | 280 18 22·6 | 1 27 33·5 | |
| 7 | 21 36 28·45 | 17 39 22·1 | ·8169751 | 16 32·0 | 280 53 56·8 | 1 28 15·7 | |
| 8 | 21 38 10·90 | 17 34 32·6 | ·8125931 | 16 29·7 | 281 29 34·2 | 1 28 57·3 | |
| 9 | 21 39 51·81 | 17 29 49·7 | ·8082009 | 16 27·4 | 282 5 14·6 | 1 29 38·5 | |
| 10 | 21 41 31·14 | 17 25 13·6 | ·8037989 | 16 25·1 | 282 40 58·1 | 1 30 19·1 | |
| 11 | 21 43 8·88 | 17 20 44·6 | ·7993877 | 16 22·8 | 283 16 44·7 | 1 30 59·2 | |
| 12 | 21 44 45·00 | 17 16 23·1 | ·7949680 | 16 20·5 | 283 52 34·2 | 1 31 38·7 | |
| 13 | 21 46 19·48 | 17 12 9·3 | ·7905404 | 16 18·1 | 284 28 26·8 | 1 32 17·8 | |
| 14 | 21 47 52·27 | 17 8 3·4 | ·7861053 | 16 15·7 | 285 4 22·4 | 1 32 56·2 | |
| 15 | 21 49 23·36 | 17 4 5·8 | ·7816634 | 16 13·2 | 285 40 21·0 | 1 33 34·1 | |
| 16 | 21 50 52·70 | 17 0 16·8 | ·7772153 | 16 10·8 | 286 16 22·5 | 1 34 11·5 | |
| 17 | 21 52 20·26 | 16 56 36·6 | ·7727615 | 16 8·3 | 286 52 26·9 | 1 34 48·2 | |
| 18 | 21 53 46·01 | 16 53 5·7 | ·7683027 | 16 5·7 | 287 28 34·2 | 1 35 24·4 | |
| 19 | 21 55 9·90 | 16 49 44·3 | ·7638396 | 16 3·2 | 288 4 44·4 | 1 36 0·0 | |
| 20 | 21 56 31·90 | 16 46 32·9 | ·7593729 | 16 0·6 | 288 40 57·5 | 1 36 35·0 | |
| 21 | 21 57 51·97 | 16 43 31·7 | ·7549035 | 15 58·0 | 289 17 13·5 | 1 37 9·4 | |
| 22 | 21 59 10·05 | 16 40 41·2 | ·7504322 | 15 55·3 | 289 53 32·2 | 1 37 43·2 | |
| 23 | 22 0 26·09 | 16 38 1·7 | ·7459602 | 15 52·6 | 290 29 53·7 | 1 38 16·4 | |
| 24 | 22 1 40·04 | 16 35 33·6 | ·7414885 | 15 49·9 | 291 6 18·0 | 1 38 49·0 | |
| 25 | 22 2 51·84 | 16 33 17·2 | ·7370184 | 15 47·1 | 291 42 45·0 | 1 39 20·9 | |
| 26 | 22 4 1·45 | 16 31 12·9 | ·7325513 | 15 44·3 | 292 19 14·7 | 1 39 52·3 | |
| 27 | 22 5 8·80 | 16 29 21·0 | ·7280888 | 15 41·5 | 292 55 47·1 | 1 40 22·9 | |
| 28 | 22 6 13·85 | 16 27 41·7 | ·7236325 | 15 38·6 | 293 32 22·1 | 1 40 53·0 | |
| 29 | 22 7 16·55 | 16 26 15·4 | ·7191841 | 15 35·7 | 294 8 59·8 | 1 41 22·4 | |
| 30 | 22 8 16·85 | 16 25 2·3 | ·7147456 | 15 32·7 | 294 45 40·0 | 1 41 51·1 | |
| 31 | 22 9 14·69 | S. 16 24 2·8 | 9·7103192 | 15 29·7 | 295 22 22·8 | S. 1 42 19·2 | 0 |

# JUNE 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 21 27 0 ·58 | + 4 ·61 | 0 ·45 | S. 18 6 34 ·8 | + 13 ·4 | 6 ·4 | 12 ·3 |
| 21 28 50 ·58 | 4 ·55 | 0 ·45 | 18 1 15 ·8 | 13 ·2 | 6 ·4 | 12 ·4 |
| 21 30 39 ·20 | 4 ·50 | 0 ·45 | 17 56 1 ·9 | 13 ·0 | 6 ·5 | 12 ·6 |
| 21 32 26 ·40 | 4 ·44 | 0 ·46 | 17 50 53 ·2 | 12 ·7 | 6 ·6 | 12 ·7 |
| 21 34 12 ·15 | 4 ·38 | 0 ·46 | 17 45 50 ·2 | 12 ·5 | 6 ·6 | 12 ·8 |
| 21 35 56 ·42 | 4 ·31 | 0 ·47 | 17 40 53 ·0 | 12 ·3 | 6 ·7 | 12 ·9 |
| 21 37 39 ·19 | 4 ·25 | 0 ·48 | 17 36 2 ·0 | 12 ·0 | 6 ·8 | 13 ·1 |
| 21 39 20 ·42 | 4 ·19 | 0 ·48 | 17 31 17 ·4 | 11 ·7 | 6 ·8 | 13 ·2 |
| 21 41 0 ·09 | 4 ·12 | 0 ·49 | 17 26 39 ·6 | 11 ·4 | 6 ·9 | 13 ·3 |
| 21 42 38 ·18 | 4 ·05 | 0 ·49 | 17 22 8 ·8 | 11 ·1 | 7 ·0 | 13 ·5 |
| 21 44 14 ·66 | 3 ·99 | 0 ·49 | 17 17 45 ·3 | 10 ·8 | 7 ·0 | 13 ·6 |
| 21 45 49 ·51 | 3 ·92 | 0 ·50 | 17 13 29 ·4 | 10 ·5 | 7 ·1 | 13 ·8 |
| 21 47 22 ·69 | 3 ·85 | 0 ·50 | 17 9 21 ·4 | 10 ·2 | 7 ·2 | 13 ·9 |
| 21 48 54 ·17 | 3 ·78 | 0 ·50 | 17 5 21 ·5 | 9 ·8 | 7 ·2 | 14 ·0 |
| 21 50 23 ·93 | 3 ·70 | 0 ·51 | 17 1 30 ·1 | 9 ·5 | 7 ·3 | 14 ·2 |
| 21 51 51 ·92 | 3 ·63 | 0 ·51 | 16 57 47 ·4 | 9 ·1 | 7 ·4 | 14 ·3 |
| 21 53 18 ·12 | 3 ·55 | 0 ·52 | 16 54 13 ·8 | 8 ·7 | 7 ·5 | 14 ·5 |
| 21 54 42 ·48 | 3 ·48 | 0 ·52 | 16 50 49 ·6 | 8 ·3 | 7 ·6 | 14 ·6 |
| 21 56 4 ·96 | 3 ·40 | 0 ·53 | 16 47 35 ·2 | 7 ·9 | 7 ·7 | 14 ·8 |
| 21 57 25 ·53 | 3 ·32 | 0 ·53 | 16 44 30 ·9 | 7 ·5 | 7 ·7 | 14 ·9 |
| 21 58 44 ·13 | 3 ·23 | 0 ·54 | 16 41 37 ·1 | 7 ·0 | 7 ·8 | 15 ·1 |
| 22 0 0 ·73 | 3 ·15 | 0 ·55 | 16 38 54 ·2 | 6 ·6 | 7 ·9 | 15 ·2 |
| 22 1 15 ·25 | 3 ·06 | 0 ·55 | 16 36 22 ·4 | 6 ·1 | 8 ·0 | 15 ·4 |
| 22 2 27 ·65 | 2 ·97 | 0 ·55 | 16 34 2 ·3 | 5 ·6 | 8 ·0 | 15 ·6 |
| 22 3 37 ·87 | 2 ·88 | 0 ·56 | 16 31 54 ·1 | 5 ·1 | 8 ·1 | 15 ·7 |
| 22 4 45 ·87 | 2 ·79 | 0 ·57 | 16 29 58 ·1 | 4 ·6 | 8 ·2 | 15 ·8 |
| 22 5 51 ·59 | 2 ·69 | 0 ·58 | 16 28 14 ·6 | 4 ·0 | 8 ·3 | 16 ·0 |
| 22 6 54 ·99 | 2 ·59 | 0 ·58 | 16 26 43 ·9 | 3 ·5 | 8 ·4 | 16 ·2 |
| 22 7 56 ·01 | 2 ·49 | 0 ·59 | 16 25 26 ·4 | 3 ·0 | 8 ·5 | 16 ·3 |
| 22 8 54 ·60 | 2 ·39 | 0 ·59 | 16 24 22 ·2 | 2 ·4 | 8 ·6 | 16 ·5 |
| 22 9 50 ·70 | + 2 ·28 | 0 ·59 | S. 16 23 31 ·6 | + 1 ·8 | 8 ·6 | 16 ·7 |

# JULY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Rad |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 22 9 14·69 | S. 16 24 2·8 | 9·7103192 | 15 29·7 | 295 22 22·8 | S. 1 42 19·2 | 0·14 |
| 2 | 22 10 10·02 | 16 23 17·0 | ·7059069 | 15 26·7 | 295 59 8·1 | 1 42 46·6 | ·14 |
| 3 | 22 11 2·79 | 16 22 45·2 | ·7015110 | 15 23·6 | 296 35 55·9 | 1 43 13·3 | ·14 |
| 4 | 22 11 52·95 | 16 22 27·6 | ·6971341 | 15 20·5 | 297 12 46·1 | 1 43 39·4 | ·14 |
| 5 | 22 12 40·47 | 16 22 24·2 | ·6927786 | 15 17·3 | 297 49 38·8 | 1 44 4·8 | ·14 |
| 6 | 22 13 25·31 | 16 22 35·2 | ·6884472 | 15 14·0 | 298 26 33·8 | 1 44 29·4 | ·14 |
| 7 | 22 14 7·43 | 16 23 0·7 | ·6841426 | 15 10·8 | 299 3 31·3 | 1 44 53·4 | ·14 |
| 8 | 22 14 46·79 | 16 23 40·8 | ·6798673 | 15 7·5 | 299 40 31·0 | 1 45 16·7 | ·14 |
| 9 | 22 15 23·37 | 16 24 35·4 | ·6756240 | 15 4·1 | 300 17 33·1 | 1 45 39·3 | ·14 |
| 10 | 22 15 57·12 | 16 25 44·7 | ·6714153 | 15 0·7 | 300 54 37·4 | 1 46 1·1 | ·14 |
| 11 | 22 16 28·03 | 16 27 8·6 | ·6672440 | 14 57·3 | 301 31 44·0 | 1 46 22·3 | ·14 |
| 12 | 22 16 56·07 | 16 28 47·1 | ·6631129 | 14 53·8 | 302 8 52·7 | 1 46 42·7 | ·14 |
| 13 | 22 17 21·19 | 16 30 40·2 | ·6590250 | 14 50·2 | 302 46 3·6 | 1 47 2·4 | ·14 |
| 14 | 22 17 43·38 | 16 32 47·9 | ·6549831 | 14 46·6 | 303 23 16·6 | 1 47 21·3 | ·14 |
| 15 | 22 18 2·61 | 16 35 10·0 | ·6509904 | 14 43·0 | 304 0 31·7 | 1 47 39·5 | ·14 |
| 16 | 22 18 18·85 | 16 37 46·6 | ·6470499 | 14 39·3 | 304 37 48·8 | 1 47 57·0 | ·14 |
| 17 | 22 18 32·07 | 16 40 37·5 | ·6431646 | 14 35·6 | 305 15 8·0 | 1 48 13·7 | ·14 |
| 18 | 22 18 42·25 | 16 43 42·5 | ·6393378 | 14 31·8 | 305 52 29·1 | 1 48 29·7 | ·14 |
| 19 | 22 18 49·37 | 16 47 1·5 | ·6355728 | 14 27·9 | 306 29 52·2 | 1 48 44·9 | ·14 |
| 20 | 22 18 53·41 | 16 50 34·3 | ·6318732 | 14 24·0 | 307 7 17·1 | 1 48 59·4 | ·14 |
| 21 | 22 18 54·35 | 16 54 20·6 | ·6282428 | 14 20·1 | 307 44 43·9 | 1 49 13·1 | ·14 |
| 22 | 22 18 52·16 | 16 58 20·2 | ·6246855 | 14 16·1 | 308 22 12·6 | 1 49 26·0 | ·14 |
| 23 | 22 18 46·84 | 17 2 32·7 | ·6212051 | 14 12·0 | 308 59 43·0 | 1 49 38·1 | ·14 |
| 24 | 22 18 38·39 | 17 6 57·7 | ·6178061 | 14 7·9 | 309 37 15·2 | 1 49 49·5 | ·14 |
| 25 | 22 18 26·80 | 17 11 34·8 | ·6144928 | 14 3·8 | 310 14 49·1 | 1 50 0·1 | ·14 |
| 26 | 22 18 12·07 | 17 16 23·4 | ·6112698 | 13 59·6 | 310 52 24·6 | 1 50 9·9 | ·14 |
| 27 | 22 17 54·23 | 17 21 23·0 | ·6081415 | 13 55·3 | 311 30 1·8 | 1 50 19·0 | ·14 |
| 28 | 22 17 33·29 | 17 26 32·9 | ·6051127 | 13 51·0 | 312 7 40·6 | 1 50 27·2 | ·14 |
| 29 | 22 17 9·30 | 17 31 52·4 | ·6021881 | 13 46·7 | 312 45 20·8 | 1 50 34·7 | ·14 |
| 30 | 22 16 42·30 | 17 37 20·8 | ·5993723 | 13 42·3 | 313 23 2·6 | 1 50 41·3 | ·14 |
| 31 | 22 16 12·33 | 17 42 57·3 | ·5966700 | 13 37·8 | 314 0 45·8 | 1 50 47·2 | ·14 |
| 32 | 22 15 39·46 | S. 17 48 40·8 | 9·5940858 | 13 33·3 | 314 38 30·4 | S. 1 50 52·3 | 0·14 |

# JULY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 22 9 50 ·70 | + 2 ·28 | 0 ·59 | S. 16 23 31 ·6 | + 1 ·8 | 8 ·6 | 16 ·7 |
| 22 10 44 ·27 | 2 ·18 | 0 ·60 | 16 22 54 ·9 | 1 ·2 | 8 ·7 | 16 ·9 |
| 22 11 35 ·26 | 2 ·07 | 0 ·60 | 16 22 32 ·3 | 0 ·7 | 8 ·8 | 17 ·1 |
| 22 12 23 ·63 | 1 ·96 | 0 ·61 | 16 22 23 ·7 | + 0 ·1 | 8 ·9 | 17 ·2 |
| 22 13 9 ·34 | 1 ·85 | 0 ·62 | 16 22 29 ·5 | — 0 ·5 | 9 ·0 | 17 ·4 |
| 22 13 52 ·36 | 1 ·74 | 0 ·63 | 16 22 49 ·7 | 1 ·1 | 9 ·1 | 17 ·6 |
| 22 14 32 ·64 | 1 ·62 | 0 ·63 | 16 23 24 ·4 | 1 ·7 | 9 ·2 | 17 ·8 |
| 22 15 10 ·17 | 1 ·51 | 0 ·64 | 16 24 13 ·5 | 2 ·4 | 9 ·3 | 17 ·9 |
| 22 15 44 ·89 | 1 ·39 | 0 ·65 | 16 25 17 ·2 | 3 ·0 | 9 ·4 | 18 ·1 |
| 22 16 16 ·79 | 1 ·27 | 0 ·65 | 16 26 35 ·5 | 3 ·6 | 9 ·5 | 18 ·3 |
| 22 16 45 ·84 | 1 ·15 | 0 ·65 | 16 28 8 ·3 | 4 ·2 | 9 ·5 | 18 ·5 |
| 22 17 12 ·00 | 1 ·03 | 0 ·66 | 16 29 55 ·6 | 4 ·8 | 9 ·6 | 18 ·6 |
| 22 17 35 ·25 | 0 ·91 | 0 ·67 | 16 31 57 ·5 | 5 ·4 | 9 ·7 | 18 ·8 |
| 22 17 55 ·57 | 0 ·78 | 0 ·68 | 16 34 13 ·7 | 6 ·0 | 9 ·8 | 19 ·0 |
| 22 18 12 ·92 | 0 ·66 | 0 ·69 | 16 36 44 ·4 | 6 ·6 | 9 ·9 | 19 ·2 |
| 22 18 27 ·28 | 0 ·54 | 0 ·69 | 16 39 29 ·3 | 7 ·2 | 10 ·0 | 19 ·3 |
| 22 18 38 ·62 | 0 ·41 | 0 ·70 | 16 42 28 ·3 | 7 ·8 | 10 ·1 | 19 ·5 |
| 22 18 46 ·93 | 0 ·28 | 0 ·71 | 16 45 41 ·3 | 8 ·3 | 10 ·2 | 19 ·7 |
| 22 18 52 ·18 | 0 ·15 | 0 ·72 | 16 49 8 ·1 | 8 ·9 | 10 ·3 | 19 ·9 |
| 22 18 54 ·35 | + 0 ·03 | 0 ·72 | 16 52 48 ·5 | 9 ·5 | 10 ·4 | 20 ·0 |
| 22 18 53 ·42 | — 0 ·10 | 0 ·72 | 16 56 42 ·1 | 10 ·0 | 10 ·4 | 20 ·2 |
| 22 18 49 ·38 | 0 ·23 | 0 ·73 | 17 0 48 ·8 | 10 ·5 | 10 ·5 | 20 ·4 |
| 22 18 42 ·22 | 0 ·36 | 0 ·74 | 17 5 8 ·0 | 11 ·1 | 10 ·6 | 20 ·5 |
| 22 18 31 ·94 | 0 ·49 | 0 ·75 | 17 9 39 ·5 | 11 ·6 | 10 ·7 | 20 ·7 |
| 22 18 18 ·55 | 0 ·62 | 0 ·75 | 17 14 22 ·6 | 12 ·0 | 10 ·8 | 20 ·8 |
| 22 18 2 ·05 | 0 ·75 | 0 ·76 | 17 19 16 ·8 | 12 ·5 | 10 ·9 | 21 ·0 |
| 22 17 42 ·46 | 0 ·88 | 0 ·76 | 17 24 21 ·5 | 12 ·9 | 10 ·9 | 21 ·1 |
| 22 17 19 ·82 | 1 ·01 | 0 ·77 | 17 29 36 ·2 | 13 ·3 | 11 ·0 | 21 ·3 |
| 22 16 54 ·17 | 1 ·13 | 0 ·78 | 17 34 59 ·9 | 13 ·7 | 11 ·1 | 21 ·4 |
| 22 16 25 ·54 | 1 ·25 | 0 ·78 | 17 40 32 ·0 | 14 ·0 | 11 ·2 | 21 ·6 |
| 22 15 54 ·01 | 1 ·37 | 0 ·78 | 17 46 11 ·6 | 14 ·3 | 11 ·2 | 21 ·7 |
| 22 15 19 ·65 | — 1 ·49 | 0 ·79 | S. 17 51 57 ·6 | —14 ·5 | 11 ·3 | 21 ·8 |

# AUGUST, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 22 15 39·46 | S. 17 48 40·8 | 9·5940858 | 13 33·3 | 314 38 30·4 | S. 1 50 52·3 | 0· |
| 2 | 22 15 3·78 | 17 54 30·4 | ·5916242 | 13 28·8 | 315 16 16·4 | 1 50 56·6 | · |
| 3 | 22 14 25·38 | 18 0 25·1 | ·5892895 | 13 24·2 | 315 54 3·7 | 1 51 0·1 | · |
| 4 | 22 13 44·35 | 18 6 23·7 | ·5870861 | 13 19·5 | 316 31 52·3 | 1 51 2·7 | · |
| 5 | 22 13 0·81 | 18 12 25·1 | ·5850177 | 13 14·8 | 317 9 42·1 | 1 51 4·6 | · |
| 6 | 22 12 14·88 | 18 18 28·4 | ·5830879 | 13 10·1 | 317 47 33·1 | 1 51 5·7 | · |
| 7 | 22 11 26·67 | 18 24 32·3 | ·5813001 | 13 5·4 | 318 25 25·2 | 1 51 5·9 | · |
| 8 | 22 10 36·33 | 18 30 35·8 | ·5796575 | 13 0·6 | 319 3 18·4 | 1 51 5·4 | · |
| 9 | 22 9 44·01 | 18 36 37·7 | ·5781631 | 12 55·8 | 319 41 12·6 | 1 51 4·0 | · |
| 10 | 22 8 49·84 | 18 42 36·9 | ·5768194 | 12 50·9 | 320 19 7·9 | 1 51 1·8 | · |
| 11 | 22 7 53·97 | 18 48 32·2 | ·5756288 | 12 46·1 | 320 57 4·1 | 1 50 58·9 | · |
| 12 | 22 6 56·57 | 18 54 22·5 | ·5745937 | 12 41·2 | 321 35 1·2 | 1 50 55·1 | · |
| 13 | 22 5 57·79 | 19 0 6·8 | ·5737153 | 12 36·2 | 322 12 59·1 | 1 50 50·5 | · |
| 14 | 22 4 57·80 | 19 5 44·0 | ·5729953 | 12 31·3 | 322 50 57·9 | 1 50 45·1 | · |
| 15 | 22 3 56·76 | 19 11 13·1 | ·5724347 | 12 26·3 | 323 28 57·4 | 1 50 38·9 | · |
| 16 | 22 2 54·84 | 19 16 33·1 | ·5720342 | 12 21·4 | 324 6 57·7 | 1 50 31·8 | · |
| 17 | 22 1 52·22 | 19 21 43·0 | ·5717948 | 12 16·4 | 324 44 58·6 | 1 50 24·0 | · |
| 18 | 22 0 49·05 | 19 26 41·9 | ·5717170 | 12 11·5 | 325 23 0·1 | 1 50 15·4 | · |
| 19 | 21 59 45·51 | 19 31 29·0 | ·5718011 | 12 6·5 | 326 1 2·3 | 1 50 5·9 | · |
| 20 | 21 58 41·77 | 19 36 3·3 | ·5720472 | 12 1·5 | 326 39 4·9 | 1 49 55·6 | · |
| 21 | 21 57 38·02 | 19 40 24·1 | ·5724552 | 11 56·5 | 327 17 8·1 | 1 49 44·6 | · |
| 22 | 21 56 34·43 | 19 44 30·4 | ·5730246 | 11 51·5 | 327 55 11·7 | 1 49 32·7 | · |
| 23 | 21 55 31·19 | 19 48 21·4 | ·5737548 | 11 46·5 | 328 33 15·6 | 1 49 20·0 | · |
| 24 | 21 54 28·47 | 19 51 56·4 | ·5746448 | 11 41·6 | 329 11 20·0 | 1 49 6·5 | · |
| 25 | 21 53 26·47 | 19 55 14·8 | ·5756933 | 11 36·6 | 329 49 24·6 | 1 48 52·2 | · |
| 26 | 21 52 25·36 | 19 58 15·8 | ·5768987 | 11 31·7 | 330 27 29·5 | 1 48 37·1 | · |
| 27 | 21 51 25·32 | 20 0 58·9 | ·5782592 | 11 26·8 | 331 5 34·5 | 1 48 21·2 | · |
| 28 | 21 50 26·54 | 20 3 23·5 | ·5797727 | 11 21·9 | 331 43 39·8 | 1 48 4·5 | · |
| 29 | 21 49 29·19 | 20 5 29·1 | ·5814366 | 11 17·0 | 332 21 45·1 | 1 47 47·0 | · |
| 30 | 21 48 33·45 | 20 7 15·3 | ·5832482 | 11 12·1 | 332 59 50·5 | 1 47 28·7 | · |
| 31 | 21 47 39·48 | 20 8 41·7 | ·5852045 | 11 7·3 | 333 37 56·0 | 1 47 9·6 | · |
| 32 | 21 46 47·45 | S. 20 9 47·9 | 9·5873024 | 11 2·6 | 334 16 1·4 | S. 1 46 4[illegible]·7 | 0· |

# AUGUST, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 22 15 19 ·65 | — 1 ·49 | 0 ·79 | S. 17 51 57 ·6 | —14 ·5 | 11 ·3 | 21 ·8 |
| 22 14 42 ·54 | 1 ·60 | 0 ·79 | 17 57 49 ·1 | 14 ·7 | 11 ·4 | 22 ·0 |
| 22 14 2 ·78 | 1 ·71 | 0 ·79 | 18 3 44 ·9 | 14 ·9 | 11 ·4 | 22 ·1 |
| 22 13 20 ·48 | 1 ·81 | 0 ·80 | 18 9 44 ·1 | 15 ·0 | 11 ·5 | 22 ·2 |
| 22 12 35 ·74 | 1 ·91 | 0 ·80 | 18 15 45 ·5 | 15 ·1 | 11 ·5 | 22 ·3 |
| 22 11 48 ·70 | 2 ·00 | 0 ·81 | 18 21 48 ·0 | 15 ·1 | 11 ·6 | 22 ·4 |
| 22 10 59 ·47 | 2 ·09 | 0 ·81 | 18 27 50 ·7 | 15 ·1 | 11 ·6 | 22 ·5 |
| 22 10 8 ·21 | 2 ·18 | 0 ·82 | 18 33 52 ·2 | 15 ·0 | 11 ·7 | 22 ·6 |
| 22 9 15 ·04 | 2 ·25 | 0 ·82 | 18 39 51 ·6 | 14 ·9 | 11 ·7 | 22 ·7 |
| 22 8 20 ·13 | 2 ·32 | 0 ·82 | 18 45 47 ·7 | 14 ·7 | 11 ·7 | 22 ·7 |
| 22 7 23 ·62 | 2 ·38 | 0 ·82 | 18 51 39 ·3 | 14 ·5 | 11 ·8 | 22 ·8 |
| 22 6 25 ·66 | 2 ·44 | 0 ·83 | 18 57 25 ·3 | 14 ·3 | 11 ·8 | 22 ·8 |
| 22 5 26 ·43 | 2 ·49 | 0 ·83 | 19 3 4 ·8 | 14 ·0 | 11 ·8 | 22 ·9 |
| 22 4 26 ·07 | 2 ·53 | 0 ·83 | 19 8 36 ·8 | 13 ·7 | 11 ·8 | 22 ·9 |
| 22 3 24 ·76 | 2 ·57 | 0 ·83 | 19 14 0 ·1 | 13 ·3 | 11 ·9 | 23 ·0 |
| 22 2 22 ·67 | 2 ·60 | 0 ·83 | 19 19 14 ·0 | 12 ·9 | 11 ·9 | 23 ·0 |
| 22 1 19 ·96 | 2 ·62 | 0 ·83 | 19 24 17 ·3 | 12 ·4 | 11 ·9 | 23 ·0 |
| 22 0 16 ·81 | 2 ·64 | 0 ·83 | 19 29 9 ·3 | 11 ·9 | 11 ·9 | 23 ·0 |
| 21 59 13 ·37 | 2 ·65 | 0 ·83 | 19 33 49 ·1 | 11 ·4 | 11 ·9 | 23 ·0 |
| 21 58 9 ·82 | 2 ·65 | 0 ·83 | 19 38 15 ·8 | 10 ·8 | 11 ·9 | 23 ·0 |
| 21 57 6 ·35 | 2 ·64 | 0 ·83 | 19 42 28 ·5 | 10 ·2 | 11 ·9 | 22 ·9 |
| 21 56 3 ·13 | 2 ·63 | 0 ·82 | 19 46 26 ·4 | 9 ·6 | 11 ·8 | 22 ·9 |
| 21 55 0 ·34 | 2 ·60 | 0 ·82 | 19 50 8 ·9 | 8 ·9 | 11 ·8 | 22 ·9 |
| 21 53 58 ·16 | 2 ·57 | 0 ·82 | 19 53 35 ·2 | 8 ·2 | 11 ·8 | 22 ·8 |
| 21 52 56 ·78 | 2 ·54 | 0 ·82 | 19 56 44 ·6 | 7 ·5 | 11 ·8 | 22 ·8 |
| 21 51 56 ·37 | 2 ·49 | 0 ·82 | 19 59 36 ·4 | 6 ·8 | 11 ·7 | 22 ·7 |
| 21 50 57 ·12 | 2 ·44 | 0 ·82 | 20 2 10 ·2 | 6 ·0 | 11 ·7 | 22 ·6 |
| 21 49 59 ·19 | 2 ·38 | 0 ·82 | 20 4 25 ·4 | 5 ·2 | 11 ·7 | 22 ·6 |
| 21 49 2 ·77 | 2 ·32 | 0 ·81 | 20 6 21 ·5 | 4 ·4 | 11 ·6 | 22 ·5 |
| 21 48 8 ·03 | 2 ·24 | 0 ·81 | 20 7 58 ·1 | 3 ·6 | 11 ·6 | 22 ·4 |
| 21 47 15 ·12 | 2 ·16 | 0 ·80 | 20 9 14 ·9 | 2 ·8 | 11 ·5 | 22 ·3 |
| 21 46 24 ·21 | — 2 ·08 | 0 ·80 | S. 20 10 11 ·5 | — 1 ·9 | 11 ·5 | 22 ·2 |

# SEPTEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 46 47·45 | S. 20 9 47·9 | 9·5873024 | 11 2·6 | 334 16 1·4 | S. 1 46 49·7 | 0·14 |
| 2 | 21 45 57·52 | 20 10 33·7 | ·5895378 | 10 57·8 | 334 54 6·7 | 1 46 29·0 | ·14 |
| 3 | 21 45 9·82 | 20 10 59·0 | ·5919068 | 10 53·1 | 335 32 11·9 | 1 46 7·5 | ·14 |
| 4 | 21 44 24·50 | 20 11 3·7 | ·5944053 | 10 48·5 | 336 10 16·9 | 1 45 45·3 | ·14 |
| 5 | 21 43 41·69 | 20 10 47·8 | ·5970288 | 10 43·8 | 336 48 21·6 | 1 45 22·3 | ·14 |
| 6 | 21 43 1·50 | 20 10 11·3 | ·5997727 | 10 39·2 | 337 26 26·1 | 1 44 58·5 | ·14 |
| 7 | 21 42 24·01 | 20 9 14·3 | ·6026325 | 10 34·7 | 338 4 30·3 | 1 44 33·9 | ·14 |
| 8 | 21 41 49·33 | 20 7 57·0 | ·6056036 | 10 30·2 | 338 42 34·0 | 1 44 8·6 | ·14 |
| 9 | 21 41 17·53 | 20 6 19·5 | ·6086810 | 10 25·8 | 339 20 37·3 | 1 43 42·5 | ·14 |
| 10 | 21 40 48·67 | 20 4 22·2 | ·6118603 | 10 21·4 | 339 58 40·2 | 1 43 15·6 | ·14 |
| 11 | 21 40 22·81 | 20 2 5·2 | ·6151367 | 10 17·1 | 340 36 42·5 | 1 42 48·0 | ·14 |
| 12 | 21 40 0·01 | 19 59 29·0 | ·6185059 | 10 12·8 | 341 14 44·2 | 1 42 19·7 | ·14 |
| 13 | 21 39 40·30 | 19 56 33·9 | ·6219631 | 10 8·6 | 341 52 45·3 | 1 41 50·6 | ·14 |
| 14 | 21 39 23·70 | 19 53 20·2 | ·6255042 | 10 4·4 | 342 30 45·7 | 1 41 20·8 | ·14 |
| 15 | 21 39 10·22 | 19 49 48·2 | ·6291251 | 10 0·2 | 343 8 45·4 | 1 40 50·3 | ·14 |
| 16 | 21 38 59·87 | 19 45 58·3 | ·6328217 | 9 56·1 | 343 46 44·4 | 1 40 19·0 | ·14 |
| 17 | 21 38 52·65 | 19 41 50·8 | ·6365901 | 9 52·1 | 344 24 42·5 | 1 39 47·0 | ·14 |
| 18 | 21 38 48·56 | 19 37 26·1 | ·6404265 | 9 48·1 | 345 2 39·8 | 1 39 14·3 | ·14 |
| 19 | 21 38 47·61 | 19 32 44·4 | ·6443274 | 9 44·2 | 345 40 36·2 | 1 38 40·9 | ·14 |
| 20 | 21 38 49·78 | 19 27 46·2 | ·6482891 | 9 40·3 | 346 18 31·7 | 1 38 6·8 | ·14 |
| 21 | 21 38 55·06 | 19 22 31·8 | ·6523081 | 9 36·5 | 346 56 26·2 | 1 37 32·0 | ·14 |
| 22 | 21 39 3·44 | 19 17 1·3 | ·6563814 | 9 32·7 | 347 34 19·6 | 1 36 56·5 | ·14 |
| 23 | 21 39 14·91 | 19 11 15·2 | ·6605057 | 9 29·0 | 348 12 12·0 | 1 36 20·3 | ·14 |
| 24 | 21 39 29·45 | 19 5 13·7 | ·6646779 | 9 25·3 | 348 50 3·3 | 1 35 43·4 | ·14 |
| 25 | 21 39 47·04 | 18 58 57·0 | ·6688952 | 9 21·7 | 349 27 53·4 | 1 35 5·8 | ·14 |
| 26 | 21 40 7·66 | 18 52 25·5 | ·6731543 | 9 18·2 | 350 5 42·3 | 1 34 27·6 | ·14 |
| 27 | 21 40 31·28 | 18 45 39·3 | ·6774522 | 9 14·7 | 350 43 30·0 | 1 33 48·7 | ·14 |
| 28 | 21 40 57·88 | 18 38 38·9 | ·6817859 | 9 11·2 | 351 21 16·3 | 1 33 9·1 | ·14 |
| 29 | 21 41 27·42 | 18 31 24·4 | ·6861526 | 9 7·7 | 351 59 1·3 | 1 32 28·9 | ·14 |
| 30 | 21 41 59·87 | 18 23 56·2 | ·6905493 | 9 4·3 | 352 36 44·9 | 1 31 48·1 | ·14 |
| 31 | 21 42 35·19 | S. 18 16 14·4 | 9·6949732 | 9 1·0 | 353 14 27·1 | S. 1 31 6·6 | 0·14 |

# SEPTEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *rent* ght nsion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 24 ·21 | — 2 ·08 | 0 ·80 | S. 20 10 11 ·5 | — 1 ·9 | 11 ·5 | 22 ·2 |
| 35 ·45 | 1 ·99 | 0 ·79 | 20 10 47 ·8 | 1 ·1 | 11 ·4 | 22 ·1 |
| 48 ·97 | 1 ·89 | 0 ·79 | 20 11 3 ·7 | — 0 ·2 | 11 ·4 | 22 ·0 |
| 4 ·90 | 1 ·78 | 0 ·79 | 20 10 59 ·1 | + 0 ·6 | 11 ·3 | 21 ·8 |
| 23 ·39 | 1 ·67 | 0 ·78 | 20 10 34 ·0 | 1 ·5 | 11 ·2 | 21 ·7 |
| 44 ·52 | 1 ·56 | 0 ·78 | 20 9 48 ·5 | 2 ·3 | 11 ·2 | 21 ·6 |
| 8 ·38 | 1 ·45 | 0 ·78 | 20 8 42 ·7 | 3 ·2 | 11 ·1 | 21 ·4 |
| 35 ·05 | 1 ·33 | 0 ·77 | 20 7 16 ·8 | 4 ·0 | 11 ·0 | 21 ·3 |
| 4 ·62 | 1 ·21 | 0 ·76 | 20 5 30 ·9 | 4 ·8 | 10 ·9 | 21 ·1 |
| 37 ·14 | 1 ·08 | 0 ·76 | 20 3 25 ·4 | 5 ·6 | 10 ·8 | 21 ·0 |
| 12 ·67 | 0 ·96 | 0 ·76 | 20 1 0 ·6 | 6 ·4 | 10 ·8 | 20 ·8 |
| 51 ·24 | 0 ·83 | 0 ·75 | 19 58 16 ·8 | 7 ·2 | 10 ·7 | 20 ·7 |
| 32 ·90 | 0 ·70 | 0 ·75 | 19 55 14 ·3 | 8 ·0 | 10 ·6 | 20 ·5 |
| 17 ·66 | 0 ·57 | 0 ·74 | 19 51 53 ·4 | 8 ·7 | 10 ·5 | 20 ·3 |
| 5 ·52 | 0 ·44 | 0 ·73 | 19 48 14 ·5 | 9 ·5 | 10 ·4 | 20 ·2 |
| 56 ·50 | 0 ·31 | 0 ·72 | 19 44 18 ·0 | 10 ·2 | 10 ·3 | 20 ·0 |
| 50 ·59 | 0 ·18 | 0 ·72 | 19 40 4 ·0 | 10 ·9 | 10 ·2 | 19 ·8 |
| 47 ·80 | — 0 ·05 | 0 ·72 | 19 35 33 ·1 | 11 ·6 | 10 ·2 | 19 ·6 |
| 48 ·11 | + 0 ·08 | 0 ·71 | 19 30 45 ·4 | 12 ·3 | 10 ·1 | 19 ·5 |
| 51 ·53 | 0 ·21 | 0 ·70 | 19 25 41 ·4 | 13 ·0 | 10 ·0 | 19 ·3 |
| 58 ·04 | 0 ·34 | 0 ·69 | 19 20 21 ·4 | 13 ·7 | 9 ·9 | 19 ·1 |
| 7 ·63 | 0 ·46 | 0 ·69 | 19 14 45 ·5 | 14 ·3 | 9 ·8 | 18 ·9 |
| 20 ·29 | 0 ·59 | 0 ·68 | 19 8 54 ·2 | 15 ·0 | 9 ·7 | 18 ·7 |
| 35 ·99 | 0 ·72 | 0 ·68 | 19 2 47 ·6 | 15 ·6 | 9 ·6 | 18 ·6 |
| 54 ·72 | 0 ·84 | 0 ·67 | 18 56 26 ·0 | 16 ·2 | 9 ·5 | 18 ·4 |
| 16 ·46 | 0 ·97 | 0 ·66 | 18 49 49 ·8 | 16 ·8 | 9 ·4 | 18 ·2 |
| 41 ·18 | 1 ·09 | 0 ·65 | 18 42 59 ·1 | 17 ·4 | 9 ·3 | 18 ·0 |
| 8 ·84 | 1 ·21 | 0 ·65 | 18 35 54 ·2 | 18 ·0 | 9 ·2 | 17 ·9 |
| 39 ·42 | 1 ·33 | 0 ·64 | 18 28 35 ·5 | 18 ·6 | 9 ·1 | 17 ·7 |
| 12 ·89 | 1 ·45 | 0 ·63 | 18 21 3 ·2 | 19 ·1 | 9 ·0 | 17 ·5 |
| 49 ·19 | + 1 ·57 | 0 ·63 | S. 18 13 17 ·6 | +19 ·7 | 9 ·0 | 17 ·3 |

# OCTOBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 42 35·19 | S. 18 16 14·4 | 9·6949732 | 9 1·0 | 353 14 27·1 | S. 1 31 6·6 | 0· |
| 2 | 21 43 13·34 | 18 8 19·5 | ·6994216 | 8 57·8 | 353 52 7·9 | 1 30 24·4 | · |
| 3 | 21 43 54·28 | 18 0 11·6 | ·7038919 | 8 54·5 | 354 29 47·1 | 1 29 41·7 | · |
| 4 | 21 44 37·96 | 17 51 51·0 | ·7083813 | 8 51·3 | 355 7 24·7 | 1 28 58·3 | · |
| 5 | 21 45 24·32 | 17 43 18·1 | ·7128873 | 8 48·2 | 355 45 0·7 | 1 28 14·3 | · |
| 6 | 21 46 13·32 | 17 34 33·1 | ·7174076 | 8 45·1 | 356 22 35·1 | 1 27 29·7 | · |
| 7 | 21 47 4·89 | 17 25 36·3 | ·7219396 | 8 42·0 | 357 0 7·7 | 1 26 44·5 | · |
| 8 | 21 47 58·98 | 17 16 28·0 | ·7264814 | 8 39·0 | 357 37 38·7 | 1 25 58·8 | · |
| 9 | 21 48 55·53 | 17 7 8·5 | ·7310310 | 8 36·0 | 358 15 7·9 | 1 25 12·4 | · |
| 10 | 21 49 54·46 | 16 57 38·0 | ·7355867 | 8 33·1 | 358 52 35·3 | 1 24 25·5 | · |
| 11 | 21 50 55·72 | 16 47 56·8 | ·7401466 | 8 30·2 | 359 30 0·8 | 1 23 38·0 | · |
| 12 | 21 51 59·25 | 16 38 5·1 | ·7447094 | 8 27·3 | 0 7 24·5 | 1 22 50·0 | · |
| 13 | 21 53 4·98 | 16 28 3·2 | ·7492735 | 8 24·5 | 0 44 46·2 | 1 22 1·4 | · |
| 14 | 21 54 12·86 | 16 17 51·3 | ·7538377 | 8 21·7 | 1 22 6·0 | 1 21 12·2 | · |
| 15 | 21 55 22·82 | 16 7 29·7 | ·7584008 | 8 18·9 | 1 59 23·8 | 1 20 22·6 | · |
| 16 | 21 56 34·81 | 15 56 58·5 | ·7629618 | 8 16·2 | 2 36 39·6 | 1 19 32·4 | · |
| 17 | 21 57 48·76 | 15 46 18·0 | ·7675196 | 8 13·5 | 3 13 53·3 | 1 18 41·7 | · |
| 18 | 21 59 4·63 | 15 35 28·2 | ·7720734 | 8 10·9 | 3 51 5·0 | 1 17 50·5 | · |
| 19 | 22 0 22·36 | 15 24 29·3 | ·7766222 | 8 8·2 | 4 28 14·5 | 1 16 58·8 | · |
| 20 | 22 1 41·90 | 15 13 21·5 | ·7811654 | 8 5·6 | 5 5 21·8 | 1 16 6·6 | · |
| 21 | 22 3 3·20 | 15 2 4·9 | ·7857023 | 8 3·0 | 5 42 26·9 | 1 15 13·9 | · |
| 22 | 22 4 26·22 | 14 50 39·7 | ·7902323 | 8 0·5 | 6 19 29·8 | 1 14 20·7 | · |
| 23 | 22 5 50·92 | 14 39 6·0 | ·7947549 | 7 58·0 | 6 56 30·3 | 1 13 27·1 | · |
| 24 | 22 7 17·25 | 14 27 23·9 | ·7992691 | 7 55·5 | 7 33 28·6 | 1 12 33·1 | · |
| 25 | 22 8 45·18 | 14 15 33·5 | ·8037744 | 7 53·0 | 8 10 24·5 | 1 11 38·6 | · |
| 26 | 22 10 14·67 | 14 3 34·9 | ·8082700 | 7 50·6 | 8 47 18·1 | 1 10 43·6 | · |
| 27 | 22 11 45·69 | 13 51 28·3 | ·8127552 | 7 48·2 | 9 24 9·2 | 1 9 48·3 | · |
| 28 | 22 13 18·19 | 13 39 13·8 | ·8172292 | 7 45·8 | 10 0 57·9 | 1 8 52·5 | · |
| 29 | 22 14 52·14 | 13 26 51·4 | ·8216914 | 7 43·4 | 10 37 44·1 | 1 7 56·4 | · |
| 30 | 22 16 27·49 | 13 14 21·4 | ·8261410 | 7 41·1 | 11 14 27·8 | 1 6 59·8 | · |
| 31 | 22 18 4·22 | 13 1 43·8 | ·8305774 | 7 38·8 | 11 51 8·9 | 1 6 2·9 | · |
| 32 | 22 19 42·28 | S. 12 48 58·9 | 9·8349999 | 7 36·5 | 12 27 47·5 | S. 1 5 5·6 | 0· |

# OCTOBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 42 49 ·19 | + 1 ·57 | 0 ·63 | S. 18 13 17 ·6 | +19 ·7 | 9 ·0 | 17 ·3 |
| 43 28 ·30 | 1 ·69 | 0 ·62 | 18 5 18 ·8 | 20 ·2 | 8 ·9 | 17 ·1 |
| 44 10 ·17 | 1 ·80 | 0 ·62 | 17 57 7 ·2 | 20 ·7 | 8 ·8 | 17 ·0 |
| 44 54 ·76 | 1 ·91 | 0 ·61 | 17 48 43 ·2 | 21 ·3 | 8 ·7 | 16 ·8 |
| 45 41 ·99 | 2 ·02 | 0 ·60 | 17 40 6 ·9 | 21 ·8 | 8 ·6 | 16 ·6 |
| 46 31 ·83 | 2 ·13 | 0 ·60 | 17 31 18 ·7 | 22 ·3 | 8 ·5 | 16 ·4 |
| 47 24 ·22 | 2 ·23 | 0 ·59 | 17 22 18 ·9 | 22 ·7 | 8 ·4 | 16 ·3 |
| 48 19 ·08 | 2 ·34 | 0 ·58 | 17 13 7 ·7 | 23 ·2 | 8 ·3 | 16 ·1 |
| 49 16 ·37 | 2 ·44 | 0 ·58 | 17 3 45 ·3 | 23 ·7 | 8 ·2 | 15 ·9 |
| 50 16 ·03 | 2 ·53 | 0 ·57 | 16 54 12 ·1 | 24 ·1 | 8 ·2 | 15 ·8 |
| 51 17 ·98 | 2 ·63 | 0 ·57 | 16 44 28 ·3 | 24 ·5 | 8 ·1 | 15 ·6 |
| 52 22 ·16 | 2 ·72 | 0 ·56 | 16 34 34 ·2 | 25 ·0 | 8 ·0 | 15 ·4 |
| 53 28 ·53 | 2 ·81 | 0 ·55 | 16 24 29 ·9 | 25 ·4 | 7 ·9 | 15 ·3 |
| 54 37 ·00 | 2 ·90 | 0 ·54 | 16 14 15 ·8 | 25 ·8 | 7 ·8 | 15 ·1 |
| 55 47 ·54 | 2 ·98 | 0 ·54 | 16 3 52 ·1 | 26 ·2 | 7 ·8 | 15 ·0 |
| 57 0 ·07 | 3 ·06 | 0 ·53 | 15 53 18 ·9 | 26 ·6 | 7 ·7 | 14 ·8 |
| 58 14 ·55 | 3 ·14 | 0 ·53 | 15 42 36 ·3 | 26 ·9 | 7 ·6 | 14 ·6 |
| 59 30 ·92 | 3 ·22 | 0 ·52 | 15 31 44 ·6 | 27 ·3 | 7 ·5 | 14 ·5 |
| 0 49 ·12 | 3 ·30 | 0 ·52 | 15 20 43 ·9 | 27 ·7 | 7 ·4 | 14 ·3 |
| 2 9 ·12 | 3 ·37 | 0 ·52 | 15 9 34 ·3 | 28 ·1 | 7 ·4 | 14 ·2 |
| 3 30 ·86 | 3 ·44 | 0 ·51 | 14 58 16 ·0 | 28 ·4 | 7 ·3 | 14 ·1 |
| 4 54 ·30 | 3 ·51 | 0 ·50 | 14 46 49 ·2 | 28 ·8 | 7 ·2 | 13 ·9 |
| 6 19 ·40 | 3 ·58 | 0 ·49 | 14 35 13 ·8 | 29 ·1 | 7 ·1 | 13 ·8 |
| 7 46 ·11 | 3 ·65 | 0 ·48 | 14 23 30 ·2 | 29 ·5 | 7 ·0 | 13 ·6 |
| 9 14 ·41 | 3 ·71 | 0 ·48 | 14 11 38 ·3 | 29 ·8 | 7 ·0 | 13 ·5 |
| 10 44 ·25 | 3 ·77 | 0 ·47 | 13 59 38 ·3 | 30 ·2 | 6 ·9 | 13 ·3 |
| 12 15 ·60 | 3 ·84 | 0 ·47 | 13 47 30 ·3 | 30 ·5 | 6 ·8 | 13 ·2 |
| 13 48 ·42 | 3 ·90 | 0 ·47 | 13 35 14 ·5 | 30 ·8 | 6 ·8 | 13 ·1 |
| 15 22 ·67 | 3 ·96 | 0 ·46 | 13 22 50 ·9 | 31 ·1 | 6 ·7 | 12 ·9 |
| 16 58 ·31 | 4 ·01 | 0 ·45 | 13 10 19 ·7 | 31 ·5 | 6 ·6 | 12 ·8 |
| 18 35 ·31 | 4 ·07 | 0 ·45 | 12 57 41 ·0 | 31 ·8 | 6 ·6 | 12 ·7 |
| 20 13 ·63 | + 4 ·12 | 0 ·44 | S. 12 44 54 ·9 | +32 ·1 | 6 ·5 | 12 ·5 |

# NOVEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 22 19 42·28 | S. 12 48 58·9 | 9·8349999 | 7 36·5 | 12 27 47·5 | S. 1 5 5·6 |
| 2 | 22 21 21·63 | 12 36 6·6 | ·8394078 | 7 34·2 | 13 4 23·5 | 1 4 7·9 |
| 3 | 22 23 2·25 | 12 23 7·3 | ·8438006 | 7 31·9 | 13 40 56·8 | 1 3 9·8 |
| 4 | 22 24 44·09 | 12 10 1·0 | ·8481776 | 7 29·7 | 14 17 27·5 | 1 2 11·4 |
| 5 | 22 26 27·12 | 11 56 47·9 | ·8525382 | 7 27·5 | 14 53 55·5 | 1 1 12·6 |
| 6 | 22 28 11·29 | 11 43 28·0 | ·8568821 | 7 25·3 | 15 30 20·8 | 1 0 13·5 |
| 7 | 22 29 56·56 | 11 30 1·7 | ·8612087 | 7 23·1 | 16 6 43·4 | 0 59 14·1 |
| 8 | 22 31 42·90 | 11 16 29·0 | ·8655176 | 7 20·9 | 16 43 3·3 | 0 58 14·3 |
| 9 | 22 33 30·26 | 11 2 50·0 | ·8698087 | 7 18·8 | 17 19 20·3 | 0 57 14·2 |
| 10 | 22 35 18·61 | 10 49 5·1 | ·8740817 | 7 16·6 | 17 55 34·5 | 0 56 13·8 |
| 11 | 22 37 7·92 | 10 35 14·2 | ·8783364 | 7 14·5 | 18 31 46·0 | 0 55 13·0 |
| 12 | 22 38 58·15 | 10 21 17·6 | ·8825728 | 7 12·5 | 19 7 54·5 | 0 54 12·0 |
| 13 | 22 40 49·27 | 10 7 15·5 | ·8867909 | 7 10·4 | 19 44 0·2 | 0 53 10·7 |
| 14 | 22 42 41·25 | 9 53 7·9 | ·8909905 | 7 8·3 | 20 20 3·0 | 0 52 9·1 |
| 15 | 22 44 34·06 | 9 38 54·9 | ·8951717 | 7 6·3 | 20 56 2·8 | 0 51 7·2 |
| 16 | 22 46 27·68 | 9 24 36·7 | ·8993345 | 7 4·2 | 21 31 59·8 | 0 50 5·1 |
| 17 | 22 48 22·09 | 9 10 13·4 | ·9034790 | 7 2·2 | 22 7 53·7 | 0 49 2·8 |
| 18 | 22 50 17·26 | 8 55 45·1 | ·9076051 | 7 0·2 | 22 43 44·7 | 0 48 0·2 |
| 19 | 22 52 13·17 | 8 41 12·0 | ·9117130 | 6 58·2 | 23 19 32·6 | 0 46 57·4 |
| 20 | 22 54 9·80 | 8 26 34·1 | ·9158027 | 6 56·2 | 23 55 17·5 | 0 45 54·3 |
| 21 | 22 56 7·13 | 8 11 51·5 | ·9198741 | 6 54·2 | 24 30 59·4 | 0 44 51·1 |
| 22 | 22 58 5·15 | 7 57 4·4 | ·9239272 | 6 52·2 | 25 6 38·2 | 0 43 47·7 |
| 23 | 23 0 3·85 | 7 42 12·7 | ·9279620 | 6 50·2 | 25 42 13·9 | 0 42 44·1 |
| 24 | 23 2 3·22 | 7 27 16·6 | ·9319784 | 6 48·3 | 26 17 46·5 | 0 41 40·3 |
| 25 | 23 4 3·24 | 7 12 16·3 | ·9359762 | 6 46·4 | 26 53 16·0 | 0 40 36·4 |
| 26 | 23 6 3·90 | 6 57 11·7 | ·9399552 | 6 44·4 | 27 28 42·4 | 0 39 32·3 |
| 27 | 23 8 5·18 | 6 42 3·1 | ·9439154 | 6 42·5 | 28 4 5·6 | 0 38 28·0 |
| 28 | 23 10 7·07 | 6 26 50·5 | ·9478565 | 6 40·6 | 28 39 25·7 | 0 37 23·6 |
| 29 | 23 12 9·56 | 6 11 34·1 | ·9517784 | 6 38·7 | 29 14 42·5 | 0 36 19·1 |
| 30 | 23 14 12·62 | 5 56 14·1 | ·9556808 | 6 36·8 | 29 49 56·2 | 0 35 14·4 |
| 31 | 23 16 16·25 | S. 5 40 50·4 | 9·9595636 | 6 35·0 | 30 25 6·6 | S. 0 34 9·6 |

# NOVEMBER, 1845.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 22 20 13 ·63 | + 4 ·12 | 0 ·44 | S. 12 44 54 ·9 | +32 ·1 | 6 ·5 | 12 ·5 |
| 2 | 22 21 53 ·23 | 4 ·18 | 0 ·43 | 12 32 1 ·6 | 32 ·4 | 6 ·4 | 12 ·4 |
| 3 | 22 23 34 ·08 | 4 ·23 | 0 ·43 | 12 19 1 ·3 | 32 ·7 | 6 ·4 | 12 ·3 |
| 4 | 22 25 16 ·14 | 4 ·28 | 0 ·43 | 12 5 54 ·0 | 32 ·9 | 6 ·3 | 12 ·2 |
| 5 | 22 26 59 ·37 | 4 ·32 | 0 ·42 | 11 52 40 ·0 | 33 ·3 | 6 ·2 | 12 ·0 |
| 6 | 22 28 43 ·72 | 4 ·37 | 0 ·42 | 11 39 19 ·4 | 33 ·5 | 6 ·2 | 11 ·9 |
| 7 | 22 30 29 ·17 | 4 ·42 | 0 ·42 | 11 25 52 ·3 | 33 ·8 | 6 ·1 | 11 ·8 |
| 8 | 22 32 15 ·66 | 4 ·46 | 0 ·42 | 11 12 18 ·9 | 34 ·0 | 6 ·1 | 11 ·7 |
| 9 | 22 34 3 ·17 | 4 ·50 | 0 ·41 | 10 58 39 ·3 | 34 ·3 | 6 ·0 | 11 ·6 |
| 10 | 22 35 51 ·66 | 4 ·54 | 0 ·41 | 10 44 53 ·8 | 34 ·5 | 6 ·0 | 11 ·5 |
| 11 | 22 37 41 ·09 | 4 ·58 | 0 ·41 | 10 31 2 ·4 | 34 ·8 | 5 ·9 | 11 ·4 |
| 12 | 22 39 31 ·43 | 4 ·62 | 0 ·40 | 10 17 5 ·3 | 35 ·0 | 5 ·8 | 11 ·2 |
| 13 | 22 41 22 ·64 | 4 ·65 | 0 ·39 | 10 3 2 ·7 | 35 ·2 | 5 ·7 | 11 ·1 |
| 14 | 22 43 14 ·71 | 4 ·69 | 0 ·39 | 9 48 54 ·7 | 35 ·4 | 5 ·7 | 11 ·0 |
| 15 | 22 45 7 ·61 | 4 ·72 | 0 ·38 | 9 34 41 ·4 | 35 ·7 | 5 ·6 | 10 ·9 |
| 16 | 22 47 1 ·31 | 4 ·75 | 0 ·38 | 9 20 22 ·9 | 35 ·9 | 5 ·6 | 10 ·8 |
| 17 | 22 48 55 ·78 | 4 ·79 | 0 ·37 | 9 5 59 ·4 | 36 ·1 | 5 ·5 | 10 ·7 |
| 18 | 22 50 51 ·01 | 4 ·82 | 0 ·37 | 8 51 30 ·9 | 36 ·3 | 5 ·5 | 10 ·6 |
| 19 | 22 52 46 ·96 | 4 ·85 | 0 ·36 | 8 36 57 ·6 | 36 ·5 | 5 ·4 | 10 ·5 |
| 20 | 22 54 43 ·63 | 4 ·88 | 0 ·36 | 8 22 19 ·5 | 36 ·7 | 5 ·4 | 10 ·4 |
| 21 | 22 56 41 ·00 | 4 ·90 | 0 ·36 | 8 7 36 ·8 | 36 ·9 | 5 ·3 | 10 ·3 |
| 22 | 22 58 39 ·06 | 4 ·93 | 0 ·36 | 7 52 49 ·6 | 37 ·1 | 5 ·3 | 10 ·2 |
| 23 | 23 0 37 ·79 | 4 ·96 | 0 ·35 | 7 37 57 ·9 | 37 ·2 | 5 ·2 | 10 ·1 |
| 24 | 23 2 37 ·18 | 4 ·99 | 0 ·35 | 7 23 1 ·8 | 37 ·4 | 5 ·2 | 10 ·0 |
| 25 | 23 4 37 ·23 | 5 ·02 | 0 ·34 | 7 8 1 ·4 | 37 ·6 | 5 ·1 | 9 ·9 |
| 26 | 23 6 37 ·90 | 5 ·04 | 0 ·34 | 6 52 56 ·9 | 37 ·8 | 5 ·1 | 9 ·8 |
| 27 | 23 8 39 ·19 | 5 ·07 | 0 ·34 | 6 37 48 ·4 | 37 ·9 | 5 ·1 | 9 ·8 |
| 28 | 23 10 41 ·09 | 5 ·09 | 0 ·33 | 6 22 35 ·9 | 38 ·1 | 5 ·0 | 9 ·7 |
| 29 | 23 12 43 ·58 | 5 ·12 | 0 ·33 | 6 7 19 ·7 | 38 ·3 | 5 ·0 | 9 ·6 |
| 30 | 23 14 46 ·64 | 5 ·14 | 0 ·33 | 5 51 59 ·9 | 38 ·4 | 4 ·9 | 9 ·5 |
| 31 | 23 16 50 ·25 | + 5 ·16 | 0 ·33 | S. 5 36 36 ·5 | +38 ·5 | 4 ·9 | 9 ·4 |

# DECEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | No |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 23 16 16·25 | S.5 40 50·4 | 9·9595636 | 6 35·0 | 30 25 6·6 | S.0 34 9·6 | 0·157 |
| 2 | 23 18 20·43 | 5 25 23·3 | ·9634266 | 6 33·1 | 31 0 13·8 | 0 33 4·7 | ·158 |
| 3 | 23 20 25·14 | 5 9 52·9 | ·9672696 | 6 31·2 | 31 35 17·8 | 0 31 59·7 | ·158 |
| 4 | 23 22 30·37 | 4 54 19·4 | ·9710925 | 6 29·4 | 32 10 18·5 | 0 30 54·6 | ·158 |
| 5 | 23 24 36·11 | 4 38 42·9 | ·9748954 | 6 27·5 | 32 45 16·0 | 0 29 49·3 | ·159 |
| 6 | 23 26 42·34 | 4 23 3·5 | ·9786780 | 6 25·7 | 33 20 10·1 | 0 28 44·0 | ·159 |
| 7 | 23 28 49·04 | 4 7 21·4 | ·9824405 | 6 23·9 | 33 55 1·0 | 0 27 38·6 | ·159 |
| 8 | 23 30 56·19 | 3 51 36·8 | ·9861828 | 6 22·0 | 34 29 48·6 | 0 26 33·2 | ·160 |
| 9 | 23 33 3·79 | 3 35 49·8 | ·9899049 | 6 20·2 | 35 4 32·9 | 0 25 27·7 | ·160 |
| 10 | 23 35 11·81 | 3 20 0·6 | ·9936069 | 6 18·4 | 35 39 13·8 | 0 24 22·1 | ·160 |
| 11 | 23 37 20·25 | 3 4 9·2 | 9·9972890 | 6 16·6 | 36 13 51·4 | 0 23 16·5 | ·161 |
| 12 | 23 39 29·09 | 2 48 15·8 | 0·0009513 | 6 14·9 | 36 48 25·7 | 0 22 10·8 | ·161 |
| 13 | 23 41 38·33 | 2 32 20·6 | ·0045939 | 6 13·1 | 37 22 56·7 | 0 21 5·1 | ·161 |
| 14 | 23 43 47·96 | 2 16 23·6 | ·0082170 | 6 11·3 | 37 57 24·3 | 0 19 59·4 | ·162 |
| 15 | 23 45 57·96 | 2 0 25·0 | ·0118207 | 6 9·5 | 38 31 48·5 | 0 18 53·7 | ·162 |
| 16 | 23 48 8·34 | 1 44 24·9 | ·0154052 | 6 7·7 | 39 6 9·4 | 0 17 48·0 | ·162 |
| 17 | 23 50 19·08 | 1 28 23·5 | ·0189707 | 6 6·0 | 39 40 26·8 | 0 16 42·2 | ·163 |
| 18 | 23 52 30·19 | 1 12 20·8 | ·0225173 | 6 4·2 | 40 14 40·9 | 0 15 36·5 | ·163 |
| 19 | 23 54 41·65 | 0 56 17·0 | ·0260450 | 6 2·5 | 40 48 51·7 | 0 14 30·8 | ·163 |
| 20 | 23 56 53·47 | 0 40 12·2 | ·0295541 | 6 0·8 | 41 22 59·0 | 0 13 25·1 | ·164 |
| 21 | 23 59 5·64 | 0 24 6·4 | ·0330445 | 5 59·0 | 41 57 2·9 | 0 12 19·5 | ·164 |
| 22 | 0 1 18·17 | S.0 7 59·7 | ·0365163 | 5 57·3 | 42 31 3·4 | 0 11 13·9 | ·165 |
| 23 | 0 3 31·05 | N.0 8 7·7 | ·0399696 | 5 55·6 | 43 5 0·5 | 0 10 8·3 | ·165 |
| 24 | 0 5 44·28 | 0 24 15·8 | ·0434043 | 5 53·8 | 43 38 54·2 | 0 9 2·8 | ·165 |
| 25 | 0 7 57·86 | 0 40 24·3 | ·0468203 | 5 52·1 | 44 12 44·4 | 0 7 57·3 | ·166 |
| 26 | 0 10 11·80 | 0 56 33·2 | ·0502177 | 5 50·4 | 44 46 31·3 | 0 6 51·9 | ·166 |
| 27 | 0 12 26·09 | 1 12 42·4 | ·0535963 | 5 48·7 | 45 20 14·7 | 0 5 46·6 | ·166 |
| 28 | 0 14 40·73 | 1 28 51·7 | ·0569561 | 5 47·0 | 45 53 54·7 | 0 4 41·4 | ·167 |
| 29 | 0 16 55·70 | 1 45 1·0 | ·0602971 | 5 45·3 | 46 27 31·2 | 0 3 36·2 | ·167 |
| 30 | 0 19 11·01 | 2 1 10·2 | ·0636191 | 5 43·7 | 47 1 4·3 | 0 2 31·1 | ·167 |
| 31 | 0 21 26·65 | 2 17 19·2 | ·0669220 | 5 42·0 | 47 34 34·0 | 0 1 26·2 | ·168 |
| 32 | 0 23 42·62 | N.2 33 27·8 | 0·0702058 | 5 40·3 | 48 8 0·3 | S.0 0 21·3 | 0·168 |

# DECEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 23 16 50 ·25 | + 5 ·16 | 0 ·33 | S. 5 36 36 ·5 | +38 ·5 | 4 ·9 | 9 ·4 |
| 23 18 54 ·42 | 5 ·18 | 0 ·32 | 5 21 9 ·7 | 38 ·7 | 4 ·8 | 9 ·3 |
| 23 20 59 ·11 | 5 ·21 | 0 ·32 | 5 5 39 ·6 | 38 ·8 | 4 ·8 | 9 ·2 |
| 23 23 4 ·32 | 5 ·23 | 0 ·32 | 4 50 6 ·5 | 38 ·9 | 4 ·8 | 9 ·2 |
| 23 25 10 ·03 | 5 ·25 | 0 ·31 | 4 34 30 ·4 | 39 ·1 | 4 ·7 | 9 ·1 |
| 23 27 16 ·23 | 5 ·27 | 0 ·31 | 4 18 51 ·5 | 39 ·2 | 4 ·7 | 9 ·0 |
| 23 29 22 ·89 | 5 ·29 | 0 ·31 | 4 3 9 ·9 | 39 ·3 | 4 ·6 | 8 ·9 |
| 23 31 30 ·00 | 5 ·31 | 0 ·31 | 3 47 25 ·8 | 39 ·4 | 4 ·6 | 8 ·9 |
| 23 33 37 ·55 | 5 ·32 | 0 ·31 | 3 31 39 ·4 | 39 ·5 | 4 ·6 | 8 ·8 |
| 23 35 45 ·53 | 5 ·34 | 0 ·30 | 3 15 50 ·7 | 39 ·6 | 4 ·5 | 8 ·7 |
| 23 37 53 ·91 | 5 ·36 | 0 ·30 | 3 0 0 ·0 | 39 ·7 | 4 ·5 | 8 ·6 |
| 23 40 2 ·69 | 5 ·37 | 0 ·30 | 2 44 7 ·3 | 39 ·7 | 4 ·5 | 8 ·6 |
| 23 42 11 ·87 | 5 ·39 | 0 ·30 | 2 28 12 ·8 | 39 ·8 | 4 ·4 | 8 ·5 |
| 23 44 21 ·44 | 5 ·41 | 0 ·29 | 2 12 16 ·6 | 39 ·9 | 4 ·3 | 8 ·4 |
| 23 46 31 ·38 | 5 ·42 | 0 ·29 | 1 56 18 ·8 | 39 ·9 | 4 ·3 | 8 ·3 |
| 23 48 41 ·69 | 5 ·44 | 0 ·29 | 1 40 19 ·5 | 40 ·0 | 4 ·3 | 8 ·3 |
| 23 50 52 ·37 | 5 ·45 | 0 ·28 | 1 24 18 ·9 | 40 ·0 | 4 ·2 | 8 ·2 |
| 23 53 3 ·40 | 5 ·47 | 0 ·28 | 1 8 17 ·2 | 40 ·1 | 4 ·2 | 8 ·1 |
| 23 55 14 ·80 | 5 ·48 | 0 ·28 | 0 52 14 ·3 | 40 ·1 | 4 ·2 | 8 ·1 |
| 23 57 26 ·55 | 5 ·50 | 0 ·27 | 0 36 10 ·3 | 40 ·2 | 4 ·1 | 8 ·0 |
| 23 59 38 ·65 | 5 ·51 | 0 ·27 | 0 20 5 ·5 | 40 ·2 | 4 ·1 | 7 ·9 |
| 0 1 51 ·10 | 5 ·53 | 0 ·27 | S. 0 3 59 ·8 | 40 ·3 | 4 ·1 | 7 ·9 |
| 0 4 3 ·91 | 5 ·54 | 0 ·27 | N. 0 12 6 ·7 | 40 ·3 | 4 ·0 | 7 ·8 |
| 0 6 17 ·07 | 5 ·56 | 0 ·27 | 0 28 13 ·7 | 40 ·3 | 4 ·0 | 7 ·8 |
| 0 8 30 ·58 | 5 ·57 | 0 ·27 | 0 44 21 ·2 | 40 ·3 | 4 ·0 | 7 ·7 |
| 0 10 44 ·45 | 5 ·59 | 0 ·26 | 1 0 29 ·0 | 40 ·3 | 3 ·9 | 7 ·6 |
| 0 12 58 ·66 | 5 ·60 | 0 ·26 | 1 16 37 ·1 | 40 ·3 | 3 ·9 | 7 ·6 |
| 0 15 13 ·22 | 5 ·61 | 0 ·26 | 1 32 45 ·3 | 40 ·3 | 3 ·9 | 7 ·5 |
| 0 17 28 ·12 | 5 ·63 | 0 ·26 | 1 48 53 ·4 | 40 ·3 | 3 ·9 | 7 ·5 |
| 0 19 43 ·35 | 5 ·64 | 0 ·26 | 2 5 1 ·5 | 40 ·3 | 3 ·8 | 7 ·4 |
| 0 21 58 ·91 | 5 ·66 | 0 ·26 | 2 21 9 ·2 | 40 ·3 | 3 ·8 | 7 ·4 |
| 0 24 14 ·80 | + 5 ·67 | 0 ·26 | N. 2 37 16 ·6 | +40 ·3 | 3 ·8 | 7 ·3 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Jan. 1 | 22 16·0 | S. 16 27 | 0·4617 | 3 31·7 | 348 18 | S. 6 28 | 0·3751 |
| 5 | 22 22·8 | 15 47 | 0·4679 | 3 22·8 | 349 23 | 6 32 | 0·3759 |
| 9 | 22 29·7 | 15 6 | 0·4738 | 3 13·9 | 350 27 | 6 35 | 0·3766 |
| 13 | 22 36·6 | 14 25 | 0·4795 | 3 5·0 | 351 31 | 6 38 | 0·3773 |
| 17 | 22 43·5 | 13 43 | 0·4849 | 2 56·2 | 352 35 | 6 41 | 0·3780 |
| 21 | 22 50·4 | 13 0 | 0·4900 | 2 47·4 | 353 39 | 6 44 | 0·3787 |
| 25 | 22 57·3 | 12 17 | 0·4948 | 2 38·6 | 354 42 | 6 46 | 0·3794 |
| 29 | 23 4·2 | 11 34 | 0·4994 | 2 29·7 | 355 46 | 6 49 | 0·3801 |
| Feb. 2 | 23 11·2 | 10 50 | 0·5037 | 2 20·9 | 356 49 | 6 51 | 0·3808 |
| 6 | 23 18·1 | 10 6 | 0·5078 | 2 12·0 | 357 52 | 6 53 | 0·3815 |
| 10 | 23 25·0 | 9 21 | 0·5116 | 2 3·2 | 358 55 | 6 55 | 0·3822 |
| 14 | 23 31·9 | 8 36 | 0·5151 | 1 54·3 | 359 58 | 6 57 | 0·3829 |
| 18 | 23 38·8 | 7 51 | 0·5184 | 1 45·4 | 1 0 | 6 58 | 0·3835 |
| 22 | 23 45·7 | 7 6 | 0·5214 | 1 36·6 | 2 3 | 7 0 | 0·3842 |
| 26 | 23 52·6 | 6 20 | 0·5242 | 1 27·7 | 3 5 | 7 1 | 0·3848 |
| March 2 | 23 59·5 | 5 35 | 0·5267 | 1 18·9 | 4 7 | 7 3 | 0·3855 |
| 6 | 0 6·4 | 4 50 | 0·5290 | 1 10·0 | 5 9 | 7 4 | 0·3861 |
| 10 | 0 13·3 | 4 5 | 0·5310 | 1 1·1 | 6 11 | 7 5 | 0·3868 |
| 14 | 0 20·2 | 3 20 | 0·5328 | 0 52·2 | 7 12 | 7 6 | 0·3874 |
| 18 | 0 27·1 | 2 35 | 0·5343 | 0 43·3 | 8 13 | 7 7 | 0·3880 |
| 22 | 0 33·9 | 1 51 | 0·5356 | 0 34·4 | 9 14 | 7 7 | 0·3886 |
| 26 | 0 40·8 | 1 7 | 0·5367 | 0 25·5 | 10 15 | 7 8 | 0·3892 |
| 30 | 0 47·6 | S. 0 23 | 0·5375 | 0 16·6 | 11 15 | 7 8 | 0·3898 |
| April 3 | 0 54·5 | N. 0 20 | 0·5381 | 0 7·7 | 12 16 | 7 8 | 0·3904 |
| 7 | 1 1·3 | 1 2 | 0·5384 | * 23 56·5 | 13 16 | 7 8 | 0·3910 |
| 11 | 1 8·1 | 1 44 | 0·5385 | 23 47·6 | 14 16 | 7 8 | 0·3916 |
| 15 | 1 14·9 | 2 26 | 0·5384 | 23 38·7 | 15 16 | 7 8 | 0·3921 |
| 19 | 1 21·7 | 3 7 | 0·5380 | 23 29·8 | 16 16 | 7 8 | 0·3927 |
| 23 | 1 28·5 | 3 47 | 0·5374 | 23 20·8 | 17 16 | 7 7 | 0·3932 |
| 27 | 1 35·3 | 4 26 | 0·5366 | 23 11·8 | 18 16 | 7 7 | 0·3938 |
| May 1 | 1 42·1 | 5 5 | 0·5355 | 23 2·8 | 19 15 | 7 6 | 0·3943 |
| 5 | 1 48·9 | N. 5 43 | 0·5342 | 22 53·8 | 20 15 | S. 7 5 | 0·3949 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| May 5 | 1 48·9 | N. 5 43 | 0·5342 | 22 53·8 | 20 15 | S. 7 5 | 0·3949 |
| 9 | 1 55·6 | 6 21 | 0·5326 | 22 44·8 | 21 14 | 7 4 | 0·3954 |
| 13 | 2 2·3 | 6 58 | 0·5308 | 22 35·8 | 22 13 | 7 3 | 0·3959 |
| 17 | 2 9·0 | 7 33 | 0·5288 | 22 26·7 | 23 12 | 7 2 | 0·3964 |
| 21 | 2 15·7 | 8 7 | 0·5265 | 22 17·7 | 24 11 | 7 1 | 0·3969 |
| 25 | 2 22·4 | 8 40 | 0·5240 | 22 8·6 | 25 9 | 6 59 | 0·3974 |
| 29 | 2 29·0 | 9 12 | 0·5213 | 21 59·5 | 26 8 | 6 58 | 0·3979 |
| June 2 | 2 35·6 | 9 43 | 0·5183 | 21 50·4 | 27 6 | 6 56 | 0·3984 |
| 6 | 2 42·2 | 10 13 | 0·5151 | 21 41·2 | 28 4 | 6 55 | 0·3989 |
| 10 | 2 48·8 | 10 42 | 0·5116 | 21 32·0 | 29 2 | 6 53 | 0·3993 |
| 14 | 2 55·3 | 11 10 | 0·5079 | 21 22·8 | 30 0 | 6 51 | 0·3998 |
| 18 | 3 1·8 | 11 36 | 0·5039 | 21 13·5 | 30 58 | 6 49 | 0·4002 |
| 22 | 3 8·2 | 12 1 | 0·4996 | 21 4·1 | 31 56 | 6 47 | 0·4006 |
| 26 | 3 14·6 | 12 26 | 0·4951 | 20 54·7 | 32 53 | 6 44 | 0·4010 |
| 30 | 3 20·9 | 12 49 | 0·4903 | 20 45·2 | 33 51 | 6 42 | 0·4014 |
| July 4 | 3 27·1 | 13 11 | 0·4853 | 20 35·6 | 34 48 | 6 39 | 0·4018 |
| 8 | 3 33·3 | 13 31 | 0·4800 | 20 26·0 | 35 45 | 6 37 | 0·4022 |
| 12 | 3 39·4 | 13 50 | 0·4745 | 20 16·3 | 36 42 | 6 34 | 0·4026 |
| 16 | 3 45·4 | 14 8 | 0·4687 | 20 6·5 | 37 39 | 6 31 | 0·4030 |
| 20 | 3 51·3 | 14 24 | 0·4626 | 19 56·7 | 38 36 | 6 28 | 0·4034 |
| 24 | 3 57·1 | 14 39 | 0·4562 | 19 46·8 | 39 33 | 6 25 | 0·4038 |
| 28 | 4 2·8 | 14 53 | 0·4496 | 19 36·7 | 40 29 | 6 22 | 0·4041 |
| Aug. 1 | 4 8·4 | 15 6 | 0·4427 | 19 26·5 | 41 26 | 6 19 | 0·4045 |
| 5 | 4 13·8 | 15 17 | 0·4355 | 19 16·1 | 42 22 | 6 15 | 0·4048 |
| 9 | 4 19·1 | 15 28 | 0·4281 | 19 5·6 | 43 18 | 6 12 | 0·4051 |
| 13 | 4 24·2 | 15 37 | 0·4204 | 18 54·9 | 44 14 | 6 8 | 0·4054 |
| 17 | 4 29·1 | 15 45 | 0·4124 | 18 44·0 | 45 11 | 6 5 | 0·4057 |
| 21 | 4 33·8 | 15 52 | 0·4042 | 18 33·0 | 46 7 | 6 1 | 0·4060 |
| 25 | 4 38·3 | 15 58 | 0·3957 | 18 21·7 | 47 3 | 5 57 | 0·4063 |
| 29 | 4 42·6 | 16 3 | 0·3869 | 18 10·2 | 47 59 | 5 53 | 0·4065 |
| Sept. 2 | 4 46·6 | 16 7 | 0·3779 | 17 58·4 | 48 55 | 5 49 | 0·4068 |
| 6 | 4 50·4 | N. 16 10 | 0·3686 | 17 46·4 | 49 50 | S. 5 45 | 0·4070 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vec. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Sept. 6 | 4 50·4 | N.16 10 | 0·3686 | 17 46·4 | 49 50 | S.5 45 | 0·407 |
| 10 | 4 53·9 | 16 12 | 0·3591 | 17 34·1 | 50 46 | 5 41 | 0·407 |
| 14 | 4 57·0 | 16 13 | 0·3494 | 17 21·4 | 51 41 | 5 37 | 0·407 |
| 18 | 4 59·8 | 16 13 | 0·3396 | 17 8·4 | 52 37 | 5 33 | 0·407 |
| 22 | 5 2·3 | 16 13 | 0·3296 | 16 55·1 | 53 32 | 5 28 | 0·407 |
| 26 | 5 4·4 | 16 12 | 0·3195 | 16 41·4 | 54 28 | 5 24 | 0·408 |
| 30 | 5 6·2 | 16 10 | 0·3093 | 16 27·4 | 55 23 | 5 19 | 0·408 |
| Oct. 4 | 5 7·5 | 16 8 | 0·2991 | 16 12·9 | 56 19 | 5 15 | 0·408 |
| 8 | 5 8·4 | 16 6 | 0·2889 | 15 58·0 | 57 14 | 5 10 | 0·408 |
| 12 | 5 8·8 | 16 3 | 0·2788 | 15 42·6 | 58 9 | 5 5 | 0·408 |
| 16 | 5 8·8 | 16 0 | 0·2690 | 15 26·8 | 59 4 | 5 0 | 0·408 |
| 20 | 5 8·3 | 15 57 | 0·2595 | 15 10·5 | 59 59 | 4 55 | 0·409 |
| 24 | 5 7·3 | 15 54 | 0·2503 | 14 53·7 | 60 54 | 4 50 | 0·409 |
| 28 | 5 5·7 | 15 51 | 0·2416 | 14 36·3 | 61 49 | 4 45 | 0·409 |
| Nov. 1 | 5 3·7 | 15 47 | 0·2335 | 14 18·5 | 62 43 | 4 40 | 0·409 |
| 5 | 5 1·2 | 15 44 | 0·2261 | 14 0·2 | 63 38 | 4 35 | 0·409 |
| 9 | 4 58·2 | 15 41 | 0·2194 | 13 41·5 | 64 33 | 4 30 | 0·409 |
| 13 | 4 54·8 | 15 38 | 0·2136 | 13 22·3 | 65 28 | 4 25 | 0·409 |
| 17 | 4 51·1 | 15 36 | 0·2089 | 13 2·8 | 66 22 | 4 19 | 0·409 |
| 21 | 4 47·1 | 15 34 | 0·2053 | 12 43·0 | 67 17 | 4 14 | 0·410 |
| 25 | 4 42·8 | 15 33 | 0·2028 | 12 23·0 | 68 11 | 4 8 | 0·410 |
| 29 | 4 38·4 | 15 32 | 0·2016 | 12 2·9 | 69 5 | 4 2 | 0·410 |
| Dec. 3 | 4 34·0 | 15 32 | 0·2016 | 11 42·8 | 69 59 | 3 56 | 0·410 |
| 7 | 4 29·6 | 15 33 | 0·2029 | 11 22·8 | 70 53 | 3 51 | 0·410 |
| 11 | 4 25·4 | 15 35 | 0·2054 | 11 2·9 | 71 48 | 3 45 | 0·41 |
| 15 | 4 21·4 | 15 38 | 0·2091 | 10 43·2 | 72 42 | 3 39 | 0·41 |
| 19 | 4 17·6 | 15 42 | 0·2140 | 10 23·7 | 73 37 | 3 33 | 0·41 |
| 23 | 4 14·1 | 15 47 | 0·2199 | 10 4·5 | 74 31 | 3 27 | 0·41 |
| 27 | 4 11·0 | 15 53 | 0·2267 | 9 45·7 | 75 26 | 3 21 | 0·41 |
| 31 | 4 8·3 | 16 0 | 0·2343 | 9 27·4 | 76 21 | 3 15 | 0·41 |
| 35 | 4 6·1 | N.16 9 | 0·2427 | 9 9·5 | 77 16 | S.3 9 | 0·41 |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | ″ |
| ptember | 2 | 4 47 11 ·22 | + 2 ·40 | N.16 7 13 ·2 | + 1 ·9 | 3 ·6 |
| | 3 | 4 48 8 ·26 | 2 ·36 | 16 7 58 ·2 | 1 ·8 | 3 ·6 |
| | 4 | 4 49 4 ·27 | 2 ·31 | 16 8 39 ·8 | 1 ·7 | 3 ·6 |
| | 5 | 4 49 59 ·22 | 2 ·27 | 16 9 18 ·0 | 1 ·5 | 3 ·7 |
| | 6 | 4 50 53 ·10 | 2 ·22 | 16 9 52 ·8 | 1 ·4 | 3 ·7 |
| | 7 | 4 51 45 ·89 | 2 ·18 | 16 10 24 ·4 | 1 ·2 | 3 ·7 |
| | 8 | 4 52 37 ·58 | 2 ·13 | 16 10 52 ·7 | 1 ·1 | 3 ·7 |
| | 9 | 4 53 28 ·14 | 2 ·08 | 16 11 17 ·9 | 1 ·0 | 3 ·7 |
| | 10 | 4 54 17 ·56 | 2 ·04 | 16 11 39 ·9 | 0 ·9 | 3 ·7 |
| | 11 | 4 55 5 ·82 | 1 ·99 | 16 11 58 ·9 | 0 ·7 | 3 ·8 |
| | 12 | 4 55 52 ·90 | 1 ·94 | 16 12 14 ·8 | 0 ·6 | 3 ·8 |
| | 13 | 4 56 38 ·79 | 1 ·89 | 16 12 27 ·9 | 0 ·5 | 3 ·8 |
| | 14 | 4 57 23 ·46 | 1 ·84 | 16 12 38 ·0 | 0 ·4 | 3 ·8 |
| | 15 | 4 58 6 ·90 | 1 ·78 | 16 12 45 ·3 | 0 ·2 | 3 ·9 |
| | 16 | 4 58 49 ·09 | 1 ·73 | 16 12 49 ·9 | + 0 ·1 | 3 ·9 |
| | 17 | 4 59 30 ·01 | 1 ·68 | 16 12 51 ·7 | 0 ·0 | 3 ·9 |
| | 18 | 5 0 9 ·63 | 1 ·62 | 16 12 50 ·9 | — 0 ·1 | 3 ·9 |
| | 19 | 5 0 47 ·93 | 1 ·57 | 16 12 47 ·5 | 0 ·2 | 3 ·9 |
| | 20 | 5 1 24 ·89 | 1 ·51 | 16 12 41 ·6 | 0 ·3 | 4 ·0 |
| | 21 | 5 2 0 ·48 | 1 ·45 | 16 12 33 ·3 | 0 ·4 | 4 ·0 |
| | 22 | 5 2 34 ·69 | 1 ·40 | 16 12 22 ·5 | 0 ·5 | 4 ·0 |
| | 23 | 5 3 7 ·49 | 1 ·34 | 16 12 9 ·4 | 0 ·6 | 4 ·0 |
| | 24 | 5 3 38 ·85 | 1 ·28 | 16 11 54 ·1 | 0 ·7 | 4 ·1 |
| | 25 | 5 4 8 ·76 | 1 ·22 | 16 11 36 ·6 | 0 ·8 | 4 ·1 |
| | 26 | 5 4 37 ·19 | 1 ·15 | 16 11 17 ·0 | 0 ·9 | 4 ·1 |
| | 27 | 5 5 4 ·12 | 1 ·09 | 16 10 55 ·3 | 0 ·9 | 4 ·1 |
| | 28 | 5 5 29 ·52 | 1 ·03 | 16 10 31 ·6 | 1 ·0 | 4 ·2 |
| | 29 | 5 5 53 ·38 | 0 ·96 | 16 10 6 ·1 | 1 ·1 | 4 ·2 |
| | 30 | 5 6 15 ·67 | 0 ·90 | 16 9 38 ·7 | 1 ·2 | 4 ·2 |
| tober | 1 | 5 6 36 ·39 | 0 ·83 | 16 9 9 ·6 | 1 ·2 | 4 ·2 |
| | 2 | 5 6 55 ·50 | + 0 ·76 | N.16 8 38 ·9 | — 1 ·3 | 4 ·3 |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | ″ |
| October | 2 | 5 6 55·50 | + 0·76 | N.16 8 38·9 | — 1·3 | 4·3 |
| | 3 | 5 7 13·00 | 0·69 | 16 8 6·6 | 1·4 | 4·3 |
| | 4 | 5 7 28·85 | 0·63 | 16 7 32·7 | 1·4 | 4·3 |
| | 5 | 5 7 43·05 | 0·56 | 16 6 57·3 | 1·5 | 4·3 |
| | 6 | 5 7 55·58 | 0·49 | 16 6 20·5 | 1·6 | 4·4 |
| | 7 | 5 8 6·43 | 0·42 | 16 5 42·4 | 1·6 | 4·4 |
| | 8 | 5 8 15·58 | 0·35 | 16 5 3·1 | 1·7 | 4·4 |
| | 9 | 5 8 23·02 | 0·27 | 16 4 22·7 | 1·7 | 4·4 |
| | 10 | 5 8 28·74 | 0·20 | 16 3 41·2 | 1·8 | 4·5 |
| | 11 | 5 8 32·73 | 0·13 | 16 2 58·7 | 1·8 | 4·5 |
| | 12 | 5 8 34·97 | + 0·06 | 16 2 15·2 | 1·8 | 4·5 |
| | 13 | 5 8 35·46 | — 0·02 | 16 1 30·9 | 1·9 | 4·5 |
| | 14 | 5 8 34·17 | 0·09 | 16 0 45·7 | 1·9 | 4·6 |
| | 15 | 5 8 31·10 | 0·17 | 15 59 59·8 | 1·9 | 4·6 |
| | 16 | 5 8 26·24 | 0·24 | 15 59 13·3 | 1·9 | 4·6 |
| | 17 | 5 8 19·57 | 0·32 | 15 58 26·2 | 2·0 | 4·6 |
| | 18 | 5 8 11·08 | 0·39 | 15 57 38·5 | 2·0 | 4·7 |
| | 19 | 5 8 0·76 | 0·47 | 15 56 50·4 | 2·0 | 4·7 |
| | 20 | 5 7 48·62 | 0·54 | 15 56 2·0 | 2·0 | 4·7 |
| | 21 | 5 7 34·64 | 0·62 | 15 55 13·3 | 2·0 | 4·7 |
| | 22 | 5 7 18·83 | 0·70 | 15 54 24·3 | 2·0 | 4·8 |
| | 23 | 5 7 1·17 | 0·77 | 15 53 35·2 | 2·0 | 4·8 |
| | 24 | 5 6 41·67 | 0·85 | 15 52 46·0 | 2·1 | 4·8 |
| | 25 | 5 6 20·33 | 0·93 | 15 51 56·7 | 2·1 | 4·8 |
| | 26 | 5 5 57·15 | 1·00 | 15 51 7·5 | 2·0 | 4·9 |
| | 27 | 5 5 32·14 | 1·08 | 15 50 18·4 | 2·0 | 4·9 |
| | 28 | 5 5 5 31 | 1·16 | 15 49 29·5 | 2·0 | 4·9 |
| | 29 | 5 4 36·67 | 1·23 | 15 48 40·9 | 2·0 | 4·9 |
| | 30 | 5 4 6·23 | 1·31 | 15 47 52·6 | 2·0 | 5·0 |
| | 31 | 5 3 34·02 | 1·38 | 15 47 4·7 | 2·0 | 5·0 |
| November | 1 | 5 3 0·06 | — 1·45 | N.15 46 17·3 | — 2·0 | 5·0 |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | ″ |
| vember | 1 | 5 3 0 ·06 | — 1 ·45 | N.15 46 17 ·3 | — 2 ·0 | 5 ·0 |
| | 2 | 5 2 24 ·36 | 1 ·52 | 15 45 30 ·5 | 1 ·9 | 5 ·0 |
| | 3 | 5 1 46 ·96 | 1 ·59 | 15 44 44 ·3 | 1 ·9 | 5 ·0 |
| | 4 | 5 1 7 ·88 | 1 ·66 | 15 43 58 ·8 | 1 ·9 | 5 ·1 |
| | 5 | 5 0 27 ·16 | 1 ·73 | 15 43 14 ·1 | 1 ·8 | 5 ·1 |
| | 6 | 4 59 44 ·83 | 1 ·80 | 15 42 30 ·2 | 1 ·8 | 5 ·1 |
| | 7 | 4 59 0 ·92 | 1 ·86 | 15 41 47 ·3 | 1 ·8 | 5 ·1 |
| | 8 | 4 58 15 ·47 | 1 ·93 | 15 41 5 ·3 | 1 ·7 | 5 ·2 |
| | 9 | 4 57 28 ·52 | 1 ·99 | 15 40 24 ·3 | 1 ·7 | 5 ·2 |
| | 10 | 4 56 40 ·11 | 2 ·05 | 15 39 44 ·4 | 1 ·6 | 5 ·2 |
| | 11 | 4 55 50 ·29 | 2 ·10 | 15 39 5 ·7 | 1 ·6 | 5 ·2 |
| | 12 | 4 54 59 ·10 | 2 ·16 | 15 38 28 ·2 | 1 ·5 | 5 ·2 |
| | 13 | 4 54 6 ·58 | 2 ·21 | 15 37 52 ·0 | 1 ·5 | 5 ·2 |
| | 14 | 4 53 12 ·79 | 2 ·27 | 15 37 17 ·3 | 1 ·4 | 5 ·3 |
| | 15 | 4 52 17 ·77 | 2 ·32 | 15 36 44 ·0 | 1 ·4 | 5 ·3 |
| | 16 | 4 51 21 ·59 | 2 ·36 | 15 36 12 ·3 | 1 ·3 | 5 ·3 |
| | 17 | 4 50 24 ·29 | 2 ·41 | 15 35 42 ·2 | 1 ·2 | 5 ·3 |
| | 18 | 4 49 25 ·94 | 2 ·45 | 15 35 13 ·8 | 1 ·1 | 5 ·3 |
| | 19 | 4 48 26 ·59 | 2 ·49 | 15 34 47 ·1 | 1 ·1 | 5 ·3 |
| | 20 | 4 47 26 ·31 | 2 ·53 | 15 34 22 ·3 | 1 ·0 | 5 ·3 |
| | 21 | 4 46 25 ·16 | 2 ·56 | 15 33 59 ·4 | 0 ·9 | 5 ·3 |
| | 22 | 4 45 23 ·20 | 2 ·60 | 15 33 38 ·5 | 0 ·8 | 5 ·4 |
| | 23 | 4 44 20 ·52 | 2 ·63 | 15 33 19 ·6 | 0 ·7 | 5 ·4 |
| | 24 | 4 43 17 ·17 | 2 ·65 | 15 33 3 ·0 | 0 ·6 | 5 ·4 |
| | 25 | 4 42 13 ·24 | 2 ·67 | 15 32 48 ·6 | 0 ·6 | 5 ·4 |
| | 26 | 4 41 8 ·81 | 2 ·69 | 15 32 36 ·6 | 0 ·4 | 5 ·4 |
| | 27 | 4 40 3 ·95 | 2 ·71 | 15 32 27 ·1 | 0 ·3 | 5 ·4 |
| | 28 | 4 38 58 ·74 | 2 ·72 | 15 32 20 ·2 | 0 ·2 | 5 ·4 |
| | 29 | 4 37 53 ·28 | 2 ·73 | 15 32 15 ·8 | — 0 ·1 | 5 ·4 |
| | 30 | 4 36 47 ·64 | 2 ·74 | 15 32 14 ·2 | 0 ·0 | 5 ·4 |
| Dec. | 1 | 4 35 41 ·89 | — 2 ·74 | N.15 32 15 ·5 | + 0 ·1 | 5 ·4 |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | H Pa |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | s |
| December | 1 | 4 35 41 ·89 | — 2 ·74 | N. 15 32 15 ·5 | + 0 ·1 | 5 |
| | 2 | 4 34 36 ·13 | 2 ·74 | 15 32 19 ·6 | 0 ·2 | 5 |
| | 3 | 4 33 30 ·44 | 2 ·73 | 15 32 26 ·8 | 0 ·4 | 5 |
| | 4 | 4 32 24 ·89 | 2 ·73 | 15 32 37 ·1 | 0 ·5 | 5 |
| | 5 | 4 31 19 ·57 | 2 ·72 | 15 32 50 ·5 | 0 ·6 | 5 |
| | 6 | 4 30 14 ·55 | 2 ·70 | 15 33 7 ·3 | 0 ·8 | 5 |
| | 7 | 4 29 9 ·92 | 2 ·68 | 15 33 27 ·4 | 0 ·9 | 5 |
| | 8 | 4 28 5 ·76 | 2 ·66 | 15 33 51 ·0 | 1 ·1 | 5 |
| | 9 | 4 27 2 ·13 | 2 ·64 | 15 34 18 ·1 | 1 ·2 | 5 |
| | 10 | 4 25 59 ·12 | 2 ·61 | 15 34 48 ·8 | 1 ·4 | 5 |
| | 11 | 4 24 56 ·78 | 2 ·58 | 15 35 23 ·3 | 1 ·5 | 5 |
| | 12 | 4 23 55 ·19 | 2 ·55 | 15 36 1 ·6 | 1 ·7 | 5 |
| | 13 | 4 22 54 ·41 | 2 ·51 | 15 36 43 ·7 | 1 ·8 | 5 |
| | 14 | 4 21 54 ·50 | 2 ·48 | 15 37 29 ·7 | 2 ·0 | 5 |
| | 15 | 4 20 55 ·54 | 2 ·44 | 15 38 19 ·8 | 2 ·2 | 5 |
| | 16 | 4 19 57 ·57 | 2 ·39 | 15 39 13 ·9 | 2 ·3 | 5 |
| | 17 | 4 19 0 ·66 | 2 ·35 | 15 40 12 ·2 | 2 ·5 | 5 |
| | 18 | 4 18 4 ·87 | 2 ·30 | 15 41 14 ·6 | 2 ·7 | 5 |
| | 19 | 4 17 10 ·25 | 2 ·25 | 15 42 21 ·3 | 2 ·9 | 5 |
| | 20 | 4 16 16 ·86 | 2 ·20 | 15 43 32 ·3 | 3 ·0 | 5 |
| | 21 | 4 15 24 ·76 | 2 ·14 | 15 44 47 ·6 | 3 ·2 | 5 |
| | 22 | 4 14 34 ·00 | 2 ·09 | 15 46 7 ·4 | 3 ·4 | 5 |
| | 23 | 4 13 44 ·62 | 2 ·03 | 15 47 31 ·7 | 3 ·6 | 5 |
| | 24 | 4 12 56 ·68 | 1 ·97 | 15 49 0 ·5 | 3 ·8 | 5 |
| | 25 | 4 12 10 ·22 | 1 ·90 | 15 50 34 ·0 | 4 ·0 | 5 |
| | 26 | 4 11 25 ·28 | 1 ·84 | 15 52 12 ·0 | 4 ·2 | 5 |
| | 27 | 4 10 41 ·90 | 1 ·77 | 15 53 54 ·6 | 4 ·4 | 5 |
| | 28 | 4 10 0 ·11 | 1 ·71 | 15 55 41 ·8 | 4 ·6 | 5 |
| | 29 | 4 9 19 ·96 | 1 ·64 | 15 57 33 ·7 | 4 ·8 | 5 |
| | 30 | 4 8 41 ·47 | 1 ·57 | 15 59 30 ·3 | 5 ·0 | 5 |
| | 31 | 4 8 4 ·67 | — 1 ·50 | N. 16 1 31 ·5 | + 5 ·1 | 5 |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|
| 1845. | h m s | s | ° ′ ″ | ″ | ″ |
| ;ember 31 | 4 8 4·67 | — 1·50 | N.16 1 31·5 | + 5·1 | 5·0 |
| 1846. | | | | | |
| uary 1 | 4 7 29·59 | 1·43 | 16 3 37·4 | 5·3 | 5·0 |
| 2 | 4 6 56·26 | 1·35 | 16 5 48·0 | 5·5 | 5·0 |
| 3 | 4 6 24·69 | 1·28 | 16 8 3·2 | 5·7 | 4·9 |
| 4 | 4 5 54·89 | 1·20 | 16 10 23·1 | 5·9 | 4·9 |
| 5 | 4 5 26·89 | 1·13 | 16 12 47·6 | 6·1 | 4·9 |
| 6 | 4 5 0·68 | 1·05 | 16 15 16·7 | 6·3 | 4·9 |
| 7 | 4 4 36·29 | 0·98 | 16 17 50·3 | 6·5 | 4·8 |
| 8 | 4 4 13·72 | 0·90 | 16 20 28·4 | 6·7 | 4·8 |
| 9 | 4 3 52·97 | 0·83 | 16 23 11·0 | 6·9 | 4·8 |
| 10 | 4 3 34·04 | 0·75 | 16 25 58·0 | 7·0 | 4·8 |
| 11 | 4 3 16·94 | 0·67 | 16 28 49·3 | 7·2 | 4·7 |
| 12 | 4 3 1·66 | 0·60 | 16 31 45·0 | 7·4 | 4·7 |
| 13 | 4 2 48·20 | 0·52 | 16 34 44·9 | 7·6 | 4·7 |
| 14 | 4 2 36·56 | 0·45 | 16 37 49·1 | 7·8 | 4·6 |
| 15 | 4 2 26·73 | 0·37 | 16 40 57·3 | 7·9 | 4·6 |
| 16 | 4 2 18·72 | 0·30 | 16 44 9·7 | 8·1 | 4·6 |
| 17 | 4 2 12·52 | 0·22 | 16 47 26·1 | 8·3 | 4·6 |
| 18 | 4 2 8·12 | 0·15 | 16 50 46·4 | 8·4 | 4·5 |
| 19 | 4 2 5·52 | — 0·07 | 16 54 10·6 | 8·6 | 4·5 |
| 20 | 4 2 4·71 | 0·00 | 16 57 38·5 | 8·7 | 4·5 |
| 21 | 4 2 5·68 | + 0·08 | 17 1 10·1 | 8·9 | 4·5 |
| 22 | 4 2 8·42 | 0·15 | 17 4 45·4 | 9·0 | 4·4 |
| 23 | 4 2 12·92 | 0·22 | 17 8 24·2 | 9·2 | 4·4 |
| 24 | 4 2 19·18 | 0·30 | 17 12 6·5 | 9·3 | 4·4 |
| 25 | 4 2 27·18 | 0·37 | 17 15 52·2 | 9·5 | 4·4 |
| 26 | 4 2 36·92 | 0·44 | 17 19 41·1 | 9·6 | 4·3 |
| 27 | 4 2 48·38 | 0·51 | 17 23 33·3 | 9·7 | 4·3 |
| 28 | 4 3 1·54 | 0·58 | 17 27 28·5 | 9·9 | 4·3 |
| 29 | 4 3 16·39 | 0·65 | 17 31 26·8 | 10·0 | 4·3 |
| 30 | 4 3 32·92 | + 0·72 | N.17 35 27·9 | + 10·1 | 4·2 |

## EPHEMERIS OF VESTA FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. |
|---|---|---|---|---|---|
| 1846. | | h m s | s | ° ′ ″ | ″ |
| January | 30 | 4 3 32 ·92 | + 0 ·72 | N.17 35 27 ·9 | + 10 ·1 |
| | 31 | 4 3 51 ·10 | 0 ·79 | 17 39 31 ·9 | 10 ·2 |
| February | 1 | 4 4 10 ·92 | 0 ·86 | 17 43 38 ·5 | 10 ·3 |
| | 2 | 4 4 32 ·36 | 0 ·93 | 17 47 47 ·7 | 10 ·4 |
| | 3 | 4 4 55 ·40 | 1 ·00 | 17 51 59 ·4 | 10 ·5 |
| | 4 | 4 5 20 ·02 | 1 ·06 | 17 56 13 ·5 | 10 ·6 |
| | 5 | 4 5 46 ·19 | 1 ·12 | 18 0 29 ·8 | 10 ·7 |
| | 6 | 4 6 13 ·90 | 1 ·19 | 18 4 48 ·3 | 10 ·8 |
| | 7 | 4 6 43 ·12 | 1 ·25 | 18 9 8 ·9 | 10 ·9 |
| | 8 | 4 7 13 ·84 | 1 ·31 | 18 13 31 ·4 | 11 ·0 |
| | 9 | 4 7 46 ·04 | 1 ·37 | 18 17 55 ·8 | 11 ·1 |
| | 10 | 4 8 19 ·70 | 1 ·43 | 18 22 21 ·9 | 11 ·1 |
| | 11 | 4 8 54 ·79 | 1 ·49 | 18 26 49 ·7 | 11 ·2 |
| | 12 | 4 9 31 ·30 | 1 ·55 | 18 31 18 ·9 | 11 ·2 |
| | 13 | 4 10 9 ·21 | 1 ·61 | 18 35 49 ·6 | 11 ·3 |
| | 14 | 4 10 48 ·50 | 1 ·67 | 18 40 21 ·5 | 11 ·3 |
| | 15 | 4 11 29 ·16 | 1 ·72 | 18 44 54 ·6 | 11 ·4 |
| | 16 | 4 12 11 ·16 | 1 ·78 | 18 49 28 ·8 | 11 ·4 |
| | 17 | 4 12 54 ·49 | 1 ·83 | 18 54 4 ·0 | 11 ·5 |
| | 18 | 4 13 39 ·14 | 1 ·89 | 18 58 40 ·2 | 11 ·5 |
| | 19 | 4 14 25 ·08 | 1 ·94 | 19 3 17 ·1 | 11 ·6 |
| | 20 | 4 15 12 ·31 | 1 ·99 | 19 7 54 ·8 | 11 ·6 |
| | 21 | 4 16 0 ·80 | 2 ·05 | 19 12 33 ·1 | 11 ·6 |
| | 22 | 4 16 50 ·54 | 2 ·10 | 19 17 11 ·8 | 11 ·6 |
| | 23 | 4 17 41 ·52 | 2 ·15 | 19 21 50 ·9 | 11 ·6 |
| | 24 | 4 18 33 ·72 | 2 ·20 | 19 26 30 ·3 | 11 ·6 |
| | 25 | 4 19 27 ·11 | 2 ·25 | 19 31 9 ·9 | 11 ·7 |
| | 26 | 4 20 21 ·69 | 2 ·30 | 19 35 49 ·6 | 11 ·7 |
| | 27 | 4 21 17 ·44 | 2 ·35 | 19 40 29 ·2 | 11 ·6 |
| | 28 | 4 22 14 ·34 | 2 ·39 | 19 45 8 ·8 | 11 ·6 |
| March | 1 | 4 23 12 ·36 | + 2 ·44 | N.19 49 48 ·1 | + 11 ·6 |

## MEAN TIME.

| ate. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| . 1 | 9 57·3 | S. 0 12 | 0·2127 | 15 10·7 | 132 40 | S. 8 10 | 0·3752 |
| 5 | 9 56·3 | S. 0 5 | 0·2052 | 14 53·9 | 133 46 | 7 58 | 0·3772 |
| 9 | 9 54·9 | N. 0 7 | 0·1983 | 14 36·7 | 134 51 | 7 46 | 0·3792 |
| 13 | 9 53·1 | 0 23 | 0·1922 | 14 19·2 | 135 55 | 7 34 | 0·3812 |
| 17 | 9 50·9 | 0 42 | 0·1869 | 14 1·3 | 136 59 | 7 22 | 0·3831 |
| 21 | 9 48·4 | 1 6 | 0·1825 | 13 43·0 | 138 2 | 7 10 | 0·3851 |
| 25 | 9 45·5 | 1 33 | 0·1791 | 13 24·3 | 139 5 | 6 58 | 0·3870 |
| 29 | 9 42·4 | 2 3 | 0·1767 | 13 5·4 | 140 7 | 6 46 | 0·3889 |
| h. 2 | 9 39·1 | 2 37 | 0·1755 | 12 46·4 | 141 8 | 6 34 | 0·3908 |
| 6 | 9 35·7 | 3 13 | 0·1756 | 12 27·3 | 142 9 | 6 22 | 0·3927 |
| 10 | 9 32·3 | 3 52 | 0·1771 | 12 8·2 | 143 9 | 6 9 | 0·3946 |
| 14 | 9 28·9 | 4 32 | 0·1799 | 11 49·1 | 144 9 | 5 57 | 0·3965 |
| 18 | 9 25·6 | 5 12 | 0·1839 | 11 30·1 | 145 8 | 5 45 | 0·3984 |
| 22 | 9 22·5 | 5 53 | 0·1892 | 11 11·3 | 146 6 | 5 33 | 0·4003 |
| 26 | 9 19·6 | 6 33 | 0·1956 | 10 52·8 | 147 4 | 5 21 | 0·4022 |
| rch 2 | 9 17·0 | 7 13 | 0·2031 | 10 34·5 | 148 1 | 5 9 | 0·4041 |
| 6 | 9 14·8 | 7 51 | 0·2116 | 10 16·6 | 148 58 | 4 57 | 0·4060 |
| 10 | 9 13·0 | 8 27 | 0·2209 | 9 59·1 | 149 54 | 4 45 | 0·4079 |
| 14 | 9 11·6 | 9 2 | 0·2309 | 9 42·0 | 150 50 | 4 33 | 0·4097 |
| 18 | 9 10·6 | 9 34 | 0·2415 | 9 25·3 | 151 46 | 4 21 | 0·4116 |
| 22 | 9 10·0 | 10 4 | 0·2527 | 9 9·1 | 152 41 | 4 9 | 0·4134 |
| 26 | 9 9·8 | 10 31 | 0·2643 | 8 53·2 | 153 35 | 3 57 | 0·4153 |
| 30 | 9 10·1 | 10 55 | 0·2761 | 8 37·8 | 154 29 | 3 45 | 0·4171 |
| il 3 | 9 10·8 | 11 16 | 0·2881 | 8 22·8 | 155 22 | 3 33 | 0·4189 |
| 7 | 9 11·8 | 11 35 | 0·3001 | 8 8·1 | 156 15 | 3 21 | 0·4207 |
| 11 | 9 13·2 | 11 51 | 0·3122 | 7 53·8 | 157 7 | 3 9 | 0·4225 |
| 15 | 9 15·0 | 12 4 | 0·3244 | 7 39·9 | 157 59 | 2 57 | 0·4242 |
| 19 | 9 17·1 | 12 15 | 0·3365 | 7 26·4 | 158 51 | 2 45 | 0·4260 |
| 23 | 9 19·5 | 12 23 | 0·3485 | 7 13·1 | 159 42 | 2 34 | 0·4277 |
| 27 | 9 22·2 | 12 29 | 0·3603 | 7 0·1 | 160 33 | 2 22 | 0·4294 |
| y 1 | 9 25·2 | 12 32 | 0·3719 | 6 47·3 | 161 23 | 2 11 | 0·4311 |
| 5 | 9 28·4 | N. 12 33 | 0·3833 | 6 34·8 | 162 13 | S. 2 0 | 0·4328 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| May 5 | 9 28 ·4 | N.12 33 | 0 ·3833 | 6 34 ·8 | 162 13 | S.2 0 | 0 ·4 |
| 9 | 9 31 ·9 | 12 33 | 0 ·3945 | 6 22 ·5 | 163 3 | 1 49 | 0 ·4 |
| 13 | 9 35 ·6 | 12 31 | 0 ·4054 | 6 10 ·4 | 163 52 | 1 37 | 0 ·4 |
| 17 | 9 39 ·5 | 12 26 | 0 ·4161 | 5 58 ·6 | 164 41 | 1 26 | 0 ·4 |
| 21 | 9 43 ·6 | 12 19 | 0 ·4265 | 5 46 ·9 | 165 29 | 1 15 | 0 ·4 |
| 25 | 9 47 ·8 | 12 11 | 0 ·4366 | 5 35 ·4 | 166 17 | 1 4 | 0 ·4 |
| 29 | 9 52 ·2 | 12 1 | 0 ·4464 | 5 24 ·0 | 167 5 | 0 53 | 0 ·4 |
| June 2 | 9 56 ·7 | 11 50 | 0 ·4560 | 5 12 ·8 | 167 52 | 0 42 | 0 ·4 |
| 6 | 10 1 ·3 | 11 37 | 0 ·4652 | 5 1 ·6 | 168 39 | 0 31 | 0 ·4 |
| 10 | 10 6 ·0 | 11 22 | 0 ·4742 | 4 50 ·6 | 169 25 | 0 20 | 0 ·4 |
| 14 | 10 10 ·8 | 11 6 | 0 ·4828 | 4 39 ·6 | 170 11 | S.0 9 | 0 ·4 |
| 18 | 10 15 ·7 | 10 49 | 0 ·4912 | 4 28 ·8 | 170 57 | N.0 1 | 0 ·4 |
| 22 | 10 20 ·7 | 10 31 | 0 ·4992 | 4 18 ·1 | 171 43 | 0 12 | 0 ·4 |
| 26 | 10 25 ·8 | 10 11 | 0 ·5070 | 4 7 ·4 | 172 28 | 0 22 | 0 ·4 |
| 30 | 10 31 ·0 | 9 50 | 0 ·5144 | 3 56 ·8 | 173 13 | 0 33 | 0 ·4 |
| July 4 | 10 36 ·2 | 9 29 | 0 ·5216 | 3 46 ·2 | 173 58 | 0 43 | 0 ·4 |
| 8 | 10 41 ·4 | 9 7 | 0 ·5284 | 3 35 ·7 | 174 42 | 0 53 | 0 ·4 |
| 12 | 10 46 ·7 | 8 44 | 0 ·5350 | 3 25 ·3 | 175 26 | 1 3 | 0 ·4 |
| 16 | 10 52 ·0 | 8 20 | 0 ·5413 | 3 14 ·9 | 176 10 | 1 13 | 0 ·4 |
| 20 | 10 57 ·4 | 7 55 | 0 ·5473 | 3 4 ·5 | 176 54 | 1 23 | 0 ·4 |
| 24 | 11 2 ·8 | 7 29 | 0 ·5530 | 2 54 ·2 | 177 37 | 1 33 | 0 ·4 |
| 28 | 11 8 ·2 | 7 3 | 0 ·5584 | 2 43 ·9 | 178 20 | 1 43 | 0 ·4 |
| Aug. 1 | 11 13 ·7 | 6 36 | 0 ·5635 | 2 33 ·6 | 179 3 | 1 53 | 0 ·4 |
| 5 | 11 19 ·2 | 6 9 | 0 ·5684 | 2 23 ·4 | 179 46 | 2 3 | 0 ·4 |
| 9 | 11 24 ·7 | 5 42 | 0 ·5730 | 2 13 ·1 | 180 28 | 2 13 | 0 ·4 |
| 13 | 11 30 ·2 | 5 14 | 0 ·5773 | 2 2 ·9 | 181 10 | 2 22 | 0 ·4 |
| 17 | 11 35 ·7 | 4 46 | 0 ·5813 | 1 52 ·7 | 181 52 | 2 32 | 0 ·4 |
| 21 | 11 41 ·3 | 4 17 | 0 ·5850 | 1 42 ·5 | 182 33 | 2 41 | 0 ·4 |
| 25 | 11 46 ·9 | 3 48 | 0 ·5885 | 1 32 ·3 | 183 14 | 2 51 | 0 ·4 |
| 29 | 11 52 ·5 | 3 19 | 0 ·5917 | 1 22 ·2 | 183 55 | 3 0 | 0 ·4 |
| Sept. 2 | 11 58 ·0 | 2 50 | 0 ·5946 | 1 12 ·0 | 184 36 | 3 9 | 0 ·4 |
| 6 | 12 3 ·6 | N. 2 20 | 0 ·5973 | 1 1 ·8 | 185 16 | N.3 18 | 0 ·4 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| t. 6 | 12 3·6 | N.2 20 | 0·5973 | 1 1·8 | 185 16 | N.3 18 | 0·4776 |
| 10 | 12 9·2 | 1 50 | 0·5997 | 0 51·6 | 185 57 | 3 27 | 0·4788 |
| 14 | 12 14·8 | 1 21 | 0·6018 | 0 41·4 | 186 37 | 3 36 | 0·4800 |
| 18 | 12 20·4 | 0 52 | 0·6036 | 0 31·3 | 187 17 | 3 45 | 0·4812 |
| 22 | 12 26·0 | N.0 23 | 0·6051 | 0 21·1 | 187 57 | 3 54 | 0·4823 |
| 26 | 12 31·6 | S.0 6 | 0·6064 | 0 10·9 | 188 37 | 4 3 | 0·4834 |
| 30 | 12 37·1 | 0 35 | 0·6074 | 0 0·7 | 189 16 | 4 11 | 0·4845 |
| 4 | 12 42·7 | 1 3 | 0·6081 | *23 48·1 | 189 55 | 4 20 | 0·4856 |
| 8 | 12 48·2 | 1 31 | 0·6086 | 23 37·8 | 190 34 | 4 28 | 0·4867 |
| 12 | 12 53·8 | 1 59 | 0·6088 | 23 27·6 | 191 13 | 4 37 | 0·4878 |
| 16 | 12 59·3 | 2 26 | 0·6087 | 23 17·4 | 191 52 | 4 45 | 0·4888 |
| 20 | 13 4·8 | 2 53 | 0·6083 | 23 7·2 | 192 31 | 4 53 | 0·4898 |
| 24 | 13 10·3 | 3 19 | 0·6076 | 22 56·9 | 193 9 | 5 1 | 0·4908 |
| 28 | 13 15·7 | 3 45 | 0·6066 | 22 46·6 | 193 47 | 5 9 | 0·4918 |
| 1 | 13 21·1 | 4 10 | 0·6054 | 22 36·2 | 194 25 | 5 17 | 0·4928 |
| 5 | 13 26·5 | 4 34 | 0·6039 | 22 25·8 | 195 3 | 5 25 | 0·4938 |
| 9 | 13 31·8 | 4 58 | 0·6021 | 22 15·4 | 195 41 | 5 33 | 0·4947 |
| 13 | 13 37·1 | 5 20 | 0·6000 | 22 4·9 | 196 19 | 5 41 | 0·4957 |
| 17 | 13 42·4 | 5 42 | 0·5976 | 21 54·4 | 196 56 | 5 49 | 0·4966 |
| 21 | 13 47·6 | 6 3 | 0·5949 | 21 43·9 | 197 33 | 5 57 | 0·4975 |
| 25 | 13 52·8 | 6 23 | 0·5920 | 21 33·3 | 198 10 | 6 4 | 0·4984 |
| 29 | 13 57·9 | 6 42 | 0·5887 | 21 22·6 | 198 47 | 6 12 | 0·4993 |
| 3 | 14 3·0 | 6 59 | 0·5852 | 21 11·9 | 199 24 | 6 19 | 0·5001 |
| 7 | 14 7·9 | 7 15 | 0·5814 | 21 1·1 | 200 1 | 6 27 | 0·5010 |
| 11 | 14 12·8 | 7 31 | 0·5773 | 20 50·2 | 200 38 | 6 34 | 0·5018 |
| 15 | 14 17·6 | 7 46 | 0·5729 | 20 39·2 | 201 15 | 6 41 | 0·5026 |
| 19 | 14 22·3 | 7 59 | 0·5682 | 20 28·1 | 201 51 | 6 48 | 0·5034 |
| 23 | 14 26·9 | 8 11 | 0·5632 | 20 16·9 | 202 27 | 6 55 | 0·5042 |
| 27 | 14 31·3 | 8 21 | 0·5580 | 20 5·6 | 203 3 | 7 2 | 0·5049 |
| 31 | 14 35·6 | 8 30 | 0·5525 | 19 54·2 | 203 39 | 7 9 | 0·5057 |
| 35 | 14 39·9 | S.8 38 | 0·5467 | 19 42·6 | 204 15 | N.7 16 | 0·5064 |

## EPHEMERIS OF JUNO FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | H P |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | s |
| January | 12 | 9 53 22 ·38 | — 1 ·23 | N. 0 19 48 ·6 | + 10 ·6 | 5 |
| | 13 | 9 52 52 ·12 | 1 ·29 | 0 24 11 ·7 | 11 ·3 | 5 |
| | 14 | 9 52 20 ·41 | 1 ·35 | 0 28 50 ·0 | 11 ·9 | 5 |
| | 15 | 9 51 47 ·29 | 1 ·41 | 0 33 43 ·5 | 12 ·5 | 5 |
| | 16 | 9 51 12 ·80 | 1 ·47 | 0 38 52 ·0 | 13 ·2 | 5 |
| | 17 | 9 50 36 ·97 | 1 ·52 | 0 44 15 ·3 | 13 ·8 | 5 |
| | 18 | 9 49 59 ·86 | 1 ·57 | 0 49 53 ·3 | 14 ·4 | 5 |
| | 19 | 9 49 21 ·50 | 1 ·62 | 0 55 45 ·9 | 15 ·0 | 5 |
| | 20 | 9 48 41 ·94 | 1 ·67 | 1 1 52 ·9 | 15 ·6 | 5 |
| | 21 | 9 48 1 ·23 | 1 ·72 | 1 8 13 ·9 | 16 ·2 | 5 |
| | 22 | 9 47 19 ·41 | 1 ·76 | 1 14 48 ·8 | 16 ·7 | 5 |
| | 23 | 9 46 36 ·52 | 1 ·81 | 1 21 37 ·4 | 17 ·3 | 5 |
| | 24 | 9 45 52 ·63 | 1 ·85 | 1 28 39 ·4 | 17 ·9 | 5 |
| | 25 | 9 45 7 ·78 | 1 ·89 | 1 35 54 ·5 | 18 ·4 | 5 |
| | 26 | 9 44 22 ·03 | 1 ·92 | 1 43 22 ·4 | 18 ·9 | 5 |
| | 27 | 9 43 35 ·44 | 1 ·96 | 1 51 2 ·7 | 19 ·4 | 5 |
| | 28 | 9 42 48 ·07 | 1 ·99 | 1 58 55 ·2 | 19 ·9 | 5 |
| | 29 | 9 41 59 ·97 | 2 ·02 | 2 6 59 ·3 | 20 ·4 | 5 |
| | 30 | 9 41 11 ·22 | 2 ·04 | 2 15 14 ·7 | 20 ·9 | 5 |
| | 31 | 9 40 21 ·88 | 2 ·07 | 2 23 41 ·0 | 21 ·3 | 5 |
| February | 1 | 9 39 32 ·00 | 2 ·09 | 2 32 17 ·8 | 21 ·7 | 5 |
| | 2 | 9 38 41 ·67 | 2 ·11 | 2 41 4 ·6 | 22 ·1 | 5 |
| | 3 | 9 37 50 ·94 | 2 ·12 | 2 50 0 ·9 | 22 ·5 | 5 |
| | 4 | 9 36 59 ·89 | 2 ·13 | 2 59 6 ·3 | 22 ·9 | 5 |
| | 5 | 9 36 8 ·60 | 2 ·14 | 3 8 20 ·1 | 23 ·2 | 5 |
| | 6 | 9 35 17 ·13 | 2 ·15 | 3 17 41 ·8 | 23 ·6 | 5 |
| | 7 | 9 34 25 ·56 | 2 ·15 | 3 27 10 ·9 | 23 ·9 | 5 |
| | 8 | 9 33 33 ·97 | 2 ·15 | 3 36 46 ·8 | 24 ·1 | 5 |
| | 9 | 9 32 42 ·43 | 2 ·14 | 3 46 28 ·9 | 24 ·4 | 5 |
| | 10 | 9 31 51 ·01 | 2 ·14 | 3 56 16 ·6 | 24 ·6 | 5 |
| 8 | 11 | 9 30 59 ·79 | — 2 ·13 | N. 4 6 9 ·4 | + 24 ·8 | 5 |

## EPHEMERIS OF JUNO FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | ″ |
| ruary | 11 | 9 30 59 ·79 | — 2 ·13 | N. 4 6 9 ·4 | + 24 ·8 | 5 ·7 |
| | 12 | 9 30 8 ·83 | 2 ·12 | 4 16 6 ·6 | 25 ·0 | 5 ·7 |
| | 13 | 9 29 18 ·21 | 2 ·10 | 4 26 7 ·7 | 25 ·1 | 5 ·7 |
| | 14 | 9 28 28 ·00 | 2 ·08 | 4 36 12 ·1 | 25 ·2 | 5 ·7 |
| | 15 | 9 27 38 ·27 | 2 ·06 | 4 46 19 ·2 | 25 ·3 | 5 ·7 |
| | 16 | 9 26 49 ·08 | 2 ·04 | 4 56 28 ·3 | 25 ·4 | 5 ·6 |
| | 17 | 9 26 0 ·49 | 2 ·01 | 5 6 39 ·1 | 25 ·5 | 5 ·6 |
| | 18 | 9 25 12 ·56 | 1 ·98 | 5 16 50 ·8 | 25 ·5 | 5 ·6 |
| | 19 | 9 24 25 ·35 | 1 ·95 | 5 27 3 ·0 | 25 ·5 | 5 ·6 |
| | 20 | 9 23 38 ·92 | 1 ·92 | 5 37 15 ·0 | 25 ·5 | 5 ·6 |
| | 21 | 9 22 53 ·32 | 1 ·88 | 5 47 26 ·5 | 25 ·5 | 5 ·6 |
| | 22 | 9 22 8 ·61 | 1 ·84 | 5 57 36 ·8 | 25 ·4 | 5 ·6 |
| | 23 | 9 21 24 ·83 | 1 ·80 | 6 7 45 ·5 | 25 ·3 | 5 ·5 |
| | 24 | 9 20 42 ·03 | 1 ·76 | 6 17 52 ·1 | 25 ·2 | 5 ·5 |
| | 25 | 9 20 0 ·27 | 1 ·72 | 6 27 56 ·0 | 25 ·1 | 5 ·5 |
| | 26 | 9 19 19 ·60 | 1 ·67 | 6 37 56 ·8 | 25 ·0 | 5 ·5 |
| | 27 | 9 18 40 ·06 | 1 ·62 | 6 47 54 ·0 | 24 ·8 | 5 ·5 |
| | 28 | 9 18 1 ·69 | 1 ·57 | 6 57 47 ·2 | 24 ·6 | 5 ·4 |
| ·ch | 1 | 9 17 24 ·54 | 1 ·52 | 7 7 36 ·0 | 24 ·4 | 5 ·4 |
| | 2 | 9 16 48 ·64 | 1 ·47 | 7 17 19 ·8 | 24 ·2 | 5 ·4 |
| | 3 | 9 16 14 ·02 | 1 ·41 | 7 26 58 ·4 | 24 ·0 | 5 ·3 |
| | 4 | 9 15 40 ·73 | 1 ·36 | 7 36 31 ·2 | 23 ·7 | 5 ·3 |
| | 5 | 9 15 8 ·80 | 1 ·30 | 7 45 58 ·0 | 23 ·5 | 5 ·3 |
| | 6 | 9 14 38 ·27 | 1 ·24 | 7 55 18 ·3 | 23 ·2 | 5 ·3 |
| | 7 | 9 14 9 ·17 | 1 ·18 | 8 4 31 ·8 | 22 ·9 | 5 ·2 |
| | 8 | 9 13 41 ·53 | 1 ·12 | 8 13 38 ·2 | 22 ·6 | 5 ·2 |
| | 9 | 9 13 15 ·37 | 1 ·06 | 8 22 37 ·1 | 22 ·3 | 5 ·2 |
| | 10 | 9 12 50 ·71 | 1 ·00 | 8 31 28 ·2 | 22 ·0 | 5 ·2 |
| | 11 | 9 12 27 ·58 | 0 ·93 | 8 40 11 ·3 | 21 ·6 | 5 ·1 |
| | 12 | 9 12 5 ·99 | 0 ·87 | 8 48 46 ·0 | 21 ·3 | 5 ·1 |
| | 13 | 9 11 45 ·96 | — 0 ·80 | N. 8 57 12 ·3 | + 20 ·9 | 5 ·1 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Jan. 1 | 18 26·9 | N. 3 4 | 0·6200 | 23 40·4 | 276 14 | N.33 53 | 0· |
| 5 | 18 32·6 | 3 7 | 0·6201 | 23 30·3 | 276 55 | 33 48 | 0· |
| 9 | 18 38·2 | 3 12 | 0·6200 | 23 20·2 | 277 36 | 33 43 | 0· |
| 13 | 18 43·8 | 3 19 | 0·6196 | 23 10·0 | 278 17 | 33 38 | 0· |
| 17 | 18 49·3 | 3 27 | 0·6190 | 22 59·8 | 278 58 | 33 33 | 0· |
| 21 | 18 54·8 | 3 37 | 0·6182 | 22 49·5 | 279 39 | 33 27 | 0· |
| 25 | 19 0·2 | 3 48 | 0·6171 | 22 39·2 | 280 19 | 33 21 | 0· |
| 29 | 19 5·5 | 4 0 | 0·6158 | 22 28·8 | 280 59 | 33 15 | 0· |
| Feb. 2 | 19 10·8 | 4 14 | 0·6142 | 22 18·3 | 281 39 | 33 9 | 0· |
| 6 | 19 16·0 | 4 29 | 0·6124 | 22 7·7 | 282 19 | 33 3 | 0· |
| 10 | 19 21·1 | 4 46 | 0·6103 | 21 57·1 | 282 58 | 32 56 | 0· |
| 14 | 19 26·1 | 5 4 | 0·6080 | 21 46·3 | 283 38 | 32 50 | 0· |
| 18 | 19 31·1 | 5 23 | 0·6055 | 21 35·5 | 284 17 | 32 43 | 0· |
| 22 | 19 36·0 | 5 43 | 0·6028 | 21 24·5 | 284 56 | 32 36 | 0· |
| 26 | 19 40·7 | 6 5 | 0·5998 | 21 13·5 | 285 35 | 32 28 | 0· |
| March 2 | 19 45·3 | 6 28 | 0·5966 | 21 2·3 | 286 14 | 32 21 | 0· |
| 6 | 19 49·8 | 6 51 | 0·5932 | 20 51·0 | 286 53 | 32 13 | 0· |
| 10 | 19 54·2 | 7 16 | 0·5896 | 20 39·6 | 287 31 | 32 5 | 0· |
| 14 | 19 58·4 | 7 41 | 0·5857 | 20 28·0 | 288 9 | 31 57 | 0· |
| 18 | 20 2·5 | 8 7 | 0·5816 | 20 16·3 | 288 47 | 31 49 | 0· |
| 22 | 20 6·4 | 8 34 | 0·5772 | 20 4·5 | 289 25 | 31 40 | 0· |
| 26 | 20 10·2 | 9 2 | 0·5726 | 19 52·5 | 290 3 | 31 32 | 0· |
| 30 | 20 13·8 | 9 30 | 0·5678 | 19 40·3 | 290 40 | 31 23 | 0· |
| April 3 | 20 17·2 | 9 59 | 0·5628 | 19 28·0 | 291 17 | 31 14 | 0· |
| 7 | 20 20·5 | 10 28 | 0·5577 | 19 15·5 | 291 54 | 31 5 | 0· |
| 11 | 20 23·6 | 10 57 | 0·5523 | 19 2·8 | 292 31 | 30 56 | 0· |
| 15 | 20 26·5 | 11 27 | 0·5468 | 18 49·9 | 293 8 | 30 46 | 0· |
| 19 | 20 29·1 | 11 57 | 0·5411 | 18 36·8 | 293 45 | 30 37 | 0· |
| 23 | 20 31·5 | 12 27 | 0·5353 | 18 23·4 | 294 21 | 30 27 | 0· |
| 27 | 20 33·7 | 12 57 | 0·5293 | 18 9·8 | 294 57 | 30 17 | 0· |
| May 1 | 20 35·6 | 13 26 | 0·5231 | 17 56·0 | 295 33 | 30 7 | 0· |
| 5 | 20 37·3 | N.13 55 | 0·5168 | 17 41·9 | 296 9 | N.29 57 | 0· |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| y 5 | 20 37·3 | N.13 55 | 0·5168 | 17 41·9 | 296 9 | N.29 57 | 0·5341 |
| 9 | 20 38·8 | 14 24 | 0·5104 | 17 27·6 | 296 45 | 29 47 | 0·5343 |
| 13 | 20 40·0 | 14 52 | 0·5039 | 17 13·0 | 297 21 | 29 37 | 0·5345 |
| 17 | 20 40·9 | 15 19 | 0·4974 | 16 58·1 | 297 56 | 29 26 | 0·5347 |
| 21 | 20 41·5 | 15 45 | 0·4908 | 16 42·9 | 298 31 | 29 15 | 0·5349 |
| 25 | 20 41·8 | 16 10 | 0·4842 | 16 27·4 | 299 6 | 29 4 | 0·5351 |
| 29 | 20 41·8 | 16 33 | 0·4776 | 16 11·6 | 299 41 | 28 53 | 0·5353 |
| ne 2 | 20 41·5 | 16 55 | 0·4711 | 15 55·6 | 300 16 | 28 42 | 0·5354 |
| 6 | 20 40·9 | 17 14 | 0·4647 | 15 39·2 | 300 51 | 28 31 | 0·5356 |
| 10 | 20 40·1 | 17 31 | 0·4584 | 15 22·6 | 301 25 | 28 19 | 0·5357 |
| 14 | 20 38·9 | 17 45 | 0·4523 | 15 5·6 | 301 59 | 28 8 | 0·5358 |
| 18 | 20 37·4 | 17 57 | 0·4463 | 14 48·4 | 302 33 | 27 56 | 0·5359 |
| 22 | 20 35·6 | 18 6 | 0·4406 | 14 30·9 | 303 7 | 27 44 | 0·5360 |
| 26 | 20 33·6 | 18 12 | 0·4353 | 14 13·1 | 303 41 | 27 32 | 0·5361 |
| 30 | 20 31·3 | 18 14 | 0·4303 | 13 55·1 | 304 15 | 27 20 | 0·5362 |
| y 4 | 20 28·8 | 18 13 | 0·4257 | 13 36·8 | 304 48 | 27 8 | 0·5362 |
| 8 | 20 26·0 | 18 8 | 0·4216 | 13 18·3 | 305 22 | 26 56 | 0·5362 |
| 12 | 20 23·1 | 17 59 | 0·4179 | 12 59·7 | 305 55 | 26 43 | 0·5362 |
| 16 | 20 20·0 | 17 46 | 0·4148 | 12 40·9 | 306 28 | 26 31 | 0·5362 |
| 20 | 20 16·9 | 17 28 | 0·4122 | 12 22·0 | 307 1 | 26 18 | 0·5362 |
| 24 | 20 13·7 | 17 7 | 0·4102 | 12 3·1 | 307 34 | 26 5 | 0·5362 |
| 28 | 20 10·5 | 16 42 | 0·4089 | 11 44·2 | 308 7 | 25 52 | 0·5361 |
| g. 1 | 20 7·4 | 16 13 | 0·4083 | 11 25·4 | 308 40 | 25 39 | 0·5361 |
| 5 | 20 4·3 | 15 40 | 0·4083 | 11 6·6 | 309 12 | 25 26 | 0·5360 |
| 9 | 20 1·3 | 15 4 | 0·4090 | 10 47·9 | 309 45 | 25 13 | 0·5360 |
| 13 | 19 58·5 | 14 26 | 0·4104 | 10 29·4 | 310 17 | 24 59 | 0·5359 |
| 17 | 19 55·9 | 13 45 | 0·4125 | 10 11·1 | 310 50 | 24 45 | 0·5358 |
| 21 | 19 53·5 | 13 1 | 0·4152 | 9 53·0 | 311 22 | 24 31 | 0·5357 |
| 25 | 19 51·4 | 12 15 | 0·4185 | 9 35·2 | 311 54 | 24 17 | 0·5356 |
| 29 | 19 49·6 | 11 28 | 0·4224 | 9 17·7 | 312 26 | 24 3 | 0·5355 |
| pt. 2 | 19 48·1 | 10 40 | 0·4269 | 9 0·5 | 312 58 | 23 49 | 0·5354 |
| 6 | 19 46·9 | N. 9 52 | 0·4318 | 8 43·6 | 313 30 | N.23 35 | 0·5352 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *N* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Sept. 6 | 19 46·9 | N.9 52 | 0·4318 | 8 43·6 | 313 30 | N.23 35 | 0· |
| 10 | 19 46·0 | 9 4 | 0·4372 | 8 27·0 | 314 2 | 23 21 | 0· |
| 14 | 19 45·4 | 8 16 | 0·4430 | 8 10·7 | 314 34 | 23 6 | 0· |
| 18 | 19 45·1 | 7 29 | 0·4492 | 7 54·7 | 315 6 | 22 52 | 0· |
| 22 | 19 45·2 | 6 42 | 0·4556 | 7 39·1 | 315 37 | 22 37 | 0· |
| 26 | 19 45·6 | 5 56 | 0·4623 | 7 23·8 | 316 9 | 22 22 | 0· |
| 30 | 19 46·3 | 5 11 | 0·4691 | 7 8·8 | 316 40 | 22 7 | 0· |
| Oct. 4 | 19 47·3 | 4 28 | 0·4760 | 6 54·2 | 317 11 | 21 52 | 0· |
| 8 | 19 48·7 | 3 47 | 0·4831 | 6 39·8 | 317 42 | 21 37 | 0· |
| 12 | 19 50·3 | 3 7 | 0·4903 | 6 25·7 | 318 13 | 21 22 | 0· |
| 16 | 19 52·2 | 2 29 | 0·4975 | 6 11·9 | 318 44 | 21 6 | 0· |
| 20 | 19 54·3 | 1 53 | 0·5047 | 5 58·3 | 319 15 | 20 51 | 0· |
| 24 | 19 56·7 | 1 19 | 0·5119 | 5 45·0 | 319 46 | 20 35 | 0· |
| 28 | 19 59·3 | 0 47 | 0·5190 | 5 31·9 | 320 17 | 20 19 | 0· |
| Nov. 1 | 20 2·2 | N.0 18 | 0·5260 | 5 19·0 | 320 48 | 20 3 | 0· |
| 5 | 20 5·3 | S.0 9 | 0·5329 | 5 6·4 | 321 19 | 19 47 | 0· |
| 9 | 20 8·6 | 0 35 | 0·5396 | 4 53·9 | 321 49 | 19 31 | 0· |
| 13 | 20 12·1 | 0 58 | 0·5461 | 4 41·6 | 322 20 | 19 15 | 0· |
| 17 | 20 15·7 | 1 19 | 0·5525 | 4 29·5 | 322 50 | 18 59 | 0·5 |
| 21 | 20 19·5 | 1 38 | 0·5587 | 4 17·6 | 323 21 | 18 43 | 0·5 |
| 25 | 20 23·5 | 1 55 | 0·5647 | 4 5·8 | 323 51 | 18 26 | 0·5 |
| 29 | 20 27·6 | 2 10 | 0·5705 | 3 54·2 | 324 22 | 18 9 | 0·5 |
| Dec. 3 | 20 31·8 | 2 23 | 0·5760 | 3 42·7 | 324 52 | 17 52 | 0·5 |
| 7 | 20 36·1 | 2 34 | 0·5813 | 3 31·3 | 325 23 | 17 35 | 0·5 |
| 11 | 20 40·6 | 2 44 | 0·5864 | 3 20·0 | 325 53 | 17 18 | 0·5 |
| 15 | 20 45·2 | 2 51 | 0·5912 | 3 8·8 | 326 23 | 17 1 | 0·5 |
| 19 | 20 49·9 | 2 57 | 0·5957 | 2 57·8 | 326 53 | 16 44 | 0·5 |
| 23 | 20 54·7 | 3 1 | 0·6000 | 2 46·8 | 327 24 | 16 27 | 0·5 |
| 27 | 20 59·5 | 3 3 | 0·6040 | 2 35·9 | 327 54 | 16 9 | 0·5 |
| 31 | 21 4·4 | 3 4 | 0·6077 | 2 25·1 | 328 24 | 15 52 | 0·5 |
| 35 | 21 9·4 | S.3 4 | 0·6112 | 2 14·3 | 328 54 | N.15 34 | 0·5 |

## EPHEMERIS OF PALLAS FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | ″ |
| ly | 1 | 20 30 10 ·62 | — 1 ·56 | N.18 15 15 ·3 | — 0 ·6 | 3 ·2 |
| | 2 | 20 29 32 ·77 | 1 ·59 | 18 14 54 ·7 | 1 ·2 | 3 ·2 |
| | 3 | 20 28 54 ·13 | 1 ·63 | 18 14 20 ·0 | 1 ·7 | 3 ·2 |
| | 4 | 20 28 14 ·71 | 1 ·66 | 18 13 31 ·0 | 2 ·3 | 3 ·2 |
| | 5 | 20 27 34 ·56 | 1 ·69 | 18 12 27 ·5 | 2 ·9 | 3 ·2 |
| | 6 | 20 26 53 ·69 | 1 ·72 | 18 11 9 ·4 | 3 ·6 | 3 ·2 |
| | 7 | 20 26 12 ·15 | 1 ·74 | 18 9 36 ·6 | 4 ·2 | 3 ·2 |
| | 8 | 20 25 29 ·97 | 1 ·77 | 18 7 48 ·9 | 4 ·8 | 3 ·3 |
| | 9 | 20 24 47 ·18 | 1 ·80 | 18 5 46 ·3 | 5 ·4 | 3 ·3 |
| | 10 | 20 24 3 ·81 | 1 ·82 | 18 3 28 ·7 | 6 ·0 | 3 ·3 |
| | 11 | 20 23 19 ·90 | 1 ·84 | 18 0 56 ·1 | 6 ·7 | 3 ·3 |
| | 12 | 20 22 35 ·49 | 1 ·86 | 17 58 8 ·4 | 7 ·3 | 3 ·3 |
| | 13 | 20 21 50 ·61 | 1 ·88 | 17 55 5 ·5 | 7 ·9 | 3 ·3 |
| | 14 | 20 21 5 ·29 | 1 ·90 | 17 51 47 ·5 | 8 ·6 | 3 ·3 |
| | 15 | 20 20 19 ·57 | 1 ·91 | 17 48 14 ·3 | 9 ·2 | 3 ·3 |
| | 16 | 20 19 33 ·49 | 1 ·93 | 17 44 26 ·0 | 9 ·8 | 3 ·3 |
| | 17 | 20 18 47 ·09 | 1 ·94 | 17 40 22 ·6 | 10 ·5 | 3 ·3 |
| | 18 | 20 18 0 ·39 | 1 ·95 | 17 36 4 ·0 | 11 ·1 | 3 ·3 |
| | 19 | 20 17 13 ·45 | 1 ·96 | 17 31 30 ·3 | 11 ·7 | 3 ·3 |
| | 20 | 20 16 26 ·29 | 1 ·97 | 17 26 41 ·5 | 12 ·3 | 3 ·3 |
| | 21 | 20 15 38 ·95 | 1 ·98 | 17 21 37 ·7 | 13 ·0 | 3 ·3 |
| | 22 | 20 14 51 ·48 | 1 ·98 | 17 16 18 ·9 | 13 ·6 | 3 ·3 |
| | 23 | 20 14 3 ·90 | 1 ·98 | 17 10 45 ·3 | 14 ·2 | 3 ·3 |
| | 24 | 20 13 16 ·26 | 1 ·99 | 17 4 56 ·8 | 14 ·8 | 3 ·3 |
| | 25 | 20 12 28 ·59 | 1 ·99 | 16 58 53 ·7 | 15 ·4 | 3 ·3 |
| | 26 | 20 11 40 ·95 | 1 ·98 | 16 52 36 ·0 | 16 ·0 | 3 ·3 |
| | 27 | 20 10 53 ·36 | 1 ·98 | 16 46 3 ·9 | 16 ·6 | 3 ·3 |
| | 28 | 20 10 5 ·87 | 1 ·98 | 16 39 17 ·5 | 17 ·2 | 3 ·3 |
| | 29 | 20 9 18 ·53 | 1 ·97 | 16 32 17 ·0 | 17 ·8 | 3 ·3 |
| | 30 | 20 8 31 ·37 | 1 ·96 | 16 25 2 ·5 | 18 ·4 | 3 ·3 |
| 8 | 31 | 20 7 44 ·45 | — 1 ·95 | N.16 17 34 ·3 | — 19 ·0 | 3 ·4 |

## EPHEMERIS OF PALLAS FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | H P |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | s |
| July | 31 | 20 7 44 ·45 | — 1 ·95 | N.16 17 34 ·3 | — 19 ·0 | 3 |
| August | 1 | 20 6 57 ·79 | 1 ·94 | 16 9 52 ·6 | 19 ·5 | 3 |
| | 2 | 20 6 11 ·44 | 1 ·92 | 16 1 57 ·6 | 20 ·1 | 3 |
| | 3 | 20 5 25 ·44 | 1 ·91 | 15 53 49 ·5 | 20 ·6 | 3 |
| | 4 | 20 4 39 ·84 | 1 ·89 | 15 45 28 ·7 | 21 ·1 | 3 |
| | 5 | 20 3 54 ·67 | 1 ·87 | 15 36 55 ·4 | 21 ·6 | 3 |
| | 6 | 20 3 9 ·98 | 1 ·85 | 15 28 10 ·0 | 22 ·1 | 3 |
| | 7 | 20 2 25 ·79 | 1 ·83 | 15 19 12 ·7 | 22 ·6 | 3 |
| | 8 | 20 1 42 ·16 | 1 ·81 | 15 10 3 ·9 | 23 ·1 | 3 |
| | 9 | 20 0 59 ·11 | 1 ·78 | 15 0 43 ·9 | 23 ·6 | 3 |
| | 10 | 20 0 16 ·68 | 1 ·75 | 14 51 13 ·1 | 24 ·0 | 3 |
| | 11 | 19 59 34 ·91 | 1 ·73 | 14 41 31 ·7 | 24 ·4 | 3 |
| | 12 | 19 58 53 ·82 | 1 ·70 | 14 31 40 ·2 | 24 ·9 | 3 |
| | 13 | 19 58 13 ·44 | 1 ·67 | 14 21 38 ·9 | 25 ·3 | 3 |
| | 14 | 19 57 33 ·82 | 1 ·63 | 14 11 28 ·1 | 25 ·6 | 3 |
| | 15 | 19 56 54 ·97 | 1 ·60 | 14 1 8 ·2 | 26 ·0 | 3 |
| | 16 | 19 56 16 ·93 | 1 ·57 | 13 50 39 ·6 | 26 ·4 | 3 |
| | 17 | 19 55 39 ·72 | 1 ·53 | 13 40 2 ·6 | 26 ·7 | 3 |
| | 18 | 19 55 3 ·37 | 1 ·50 | 13 29 17 ·6 | 27 ·0 | 3 |
| | 19 | 19 54 27 ·91 | 1 ·46 | 13 18 25 ·0 | 27 ·3 | 3 |
| | 20 | 19 53 53 ·36 | 1 ·42 | 13 7 25 ·2 | 27 ·6 | 3 |
| | 21 | 19 53 19 ·74 | 1 ·38 | 12 56 18 ·5 | 27 ·9 | 3 |
| | 22 | 19 52 47 ·08 | 1 ·34 | 12 45 5 ·3 | 28 ·2 | 3 |
| | 23 | 19 52 15 ·39 | 1 ·30 | 12 33 45 ·9 | 28 ·4 | 3 |
| | 24 | 19 51 44 ·70 | 1 ·26 | 12 22 20 ·8 | 28 ·7 | 3 |
| | 25 | 19 51 15 ·03 | 1 ·21 | 12 10 50 ·4 | 28 ·9 | 3 |
| | 26 | 19 50 46 ·40 | 1 ·17 | 11 59 15 ·0 | 29 ·1 | 3 |
| | 27 | 19 50 18 ·84 | 1 ·13 | 11 47 35 ·1 | 29 ·3 | 3 |
| | 28 | 19 49 52 ·35 | 1 ·08 | 11 35 50 ·9 | 29 ·4 | 3 |
| | 29 | 19 49 26 ·97 | 1 ·03 | 11 24 2 ·9 | 29 ·6 | 3 |
| | 30 | 19 49 2 ·70 | — 0 ·99 | N.11 12 11 ·4 | — 29 ·7 | 3 |

## MEAN TIME.

| Date. | Geocentric. Right Ascension. Noon. | Geocentric. Declination. Noon. | Geocentric. Log. of Dist. from the Earth. Noon. | Geocentric. Meridian Passage. | Heliocentric. Longitude. Noon. | Heliocentric. Latitude. Noon. | Heliocentric. Log. of Rad. Vect. Noon. |
|---|---|---|---|---|---|---|---|
| .845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| 1 | 19 2·0 | S. 25 59 | 0·5907 | 0 18·0 | 284 55 | S. 4 23 | 0·4650 |
| 5 | 19 9·1 | 25 54 | 0·5911 | 0 9·3 | 285 41 | 4 31 | 0·4654 |
| 9 | 19 16·2 | 25 48 | 0·5913 | 0 0·7 | 286 26 | 4 38 | 0·4657 |
| 13 | 19 23·3 | 25 41 | 0·5912 | * 23 49·9 | 287 12 | 4 46 | 0·4660 |
| 17 | 19 30·3 | 25 33 | 0·5908 | 23 41·2 | 287 57 | 4 53 | 0·4663 |
| 21 | 19 37·3 | 25 24 | 0·5901 | 23 32·4 | 288 43 | 5 1 | 0·4666 |
| 25 | 19 44·2 | 25 14 | 0·5892 | 23 23·6 | 289 28 | 5 8 | 0·4669 |
| 29 | 19 51·1 | 25 3 | 0·5880 | 23 14·7 | 290 13 | 5 16 | 0·4672 |
| 2 | 19 58·0 | 24 52 | 0·5866 | 23 5·8 | 290 58 | 5 23 | 0·4675 |
| 6 | 20 4·8 | 24 40 | 0·5849 | 22 56·8 | 291 43 | 5 30 | 0·4678 |
| 10 | 20 11·6 | 24 27 | 0·5829 | 22 47·8 | 292 28 | 5 37 | 0·4681 |
| 14 | 20 18·3 | 24 13 | 0·5806 | 22 38·7 | 293 13 | 5 44 | 0·4684 |
| 18 | 20 24·9 | 23 59 | 0·5781 | 22 29·6 | 293 58 | 5 51 | 0·4687 |
| 22 | 20 31·4 | 23 44 | 0·5753 | 22 20·4 | 294 43 | 5 58 | 0·4690 |
| 26 | 20 37·9 | 23 29 | 0·5723 | 22 11·0 | 295 28 | 6 5 | 0·4692 |
| 2 | 20 44·2 | 23 14 | 0·5690 | 22 1·5 | 296 13 | 6 12 | 0·4695 |
| 6 | 20 50·5 | 22 58 | 0·5654 | 21 52·0 | 296 58 | 6 19 | 0·4697 |
| 10 | 20 56·7 | 22 42 | 0·5615 | 21 42·4 | 297 43 | 6 26 | 0·4700 |
| 14 | 21 2·8 | 22 26 | 0·5574 | 21 32·7 | 298 28 | 6 32 | 0·4702 |
| 18 | 21 8·8 | 22 10 | 0·5530 | 21 22·9 | 299 13 | 6 39 | 0·4705 |
| 22 | 21 14·6 | 21 54 | 0·5484 | 21 13·0 | 299 57 | 6 45 | 0·4707 |
| 26 | 21 20·4 | 21 38 | 0·5435 | 21 3·0 | 300 42 | 6 52 | 0·4709 |
| 30 | 21 26·0 | 21 23 | 0·5384 | 20 52·8 | 301 27 | 6 58 | 0·4711 |
| il 3 | 21 31·5 | 21 8 | 0·5330 | 20 42·6 | 302 12 | 7 4 | 0·4713 |
| 7 | 21 36·9 | 20 53 | 0·5273 | 20 32·2 | 302 56 | 7 10 | 0·4715 |
| 11 | 21 42·2 | 20 39 | 0·5214 | 20 21·7 | 303 41 | 7 16 | 0·4717 |
| 15 | 21 47·3 | 20 26 | 0·5152 | 20 11·0 | 304 25 | 7 22 | 0·4719 |
| 19 | 21 52·3 | 20 13 | 0·5088 | 20 0·2 | 305 10 | 7 28 | 0·4721 |
| 23 | 21 57·1 | 20 1 | 0·5021 | 19 49·3 | 305 54 | 7 34 | 0·4723 |
| 27 | 22 1·8 | 19 50 | 0·4952 | 19 38·2 | 306 39 | 7 40 | 0·4725 |
| y 1 | 22 6·3 | 19 40 | 0·4881 | 19 27·0 | 307 23 | 7 45 | 0·4727 |
| 5 | 22 10·6 | S. 19 31 | 0·4807 | 19 15·6 | 308 8 | S. 7 51 | 0·4729 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination. | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *N* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| May 5 | 22 10·6 | S. 19 31 | 0·4807 | 19 15·6 | 308 8 | S. 7 51 | 0· |
| 9 | 22 14·8 | 19 23 | 0·4732 | 19 3·9 | 308 52 | 7 56 | 0· |
| 13 | 22 18·8 | 19 17 | 0·4654 | 18 52·0 | 309 37 | 8 2 | 0· |
| 17 | 22 22·5 | 19 12 | 0·4575 | 18 40·0 | 310 21 | 8 7 | 0· |
| 21 | 22 26·0 | 19 9 | 0·4493 | 18 27·7 | 311 6 | 8 13 | 0· |
| 25 | 22 29·3 | 19 7 | 0·4410 | 18 15·2 | 311 50 | 8 18 | 0· |
| 29 | 22 32·4 | 19 7 | 0·4325 | 18 2·5 | 312 35 | 8 23 | 0· |
| June 2 | 22 35·2 | 19 10 | 0·4240 | 17 49·5 | 313 19 | 8 28 | 0· |
| 6 | 22 37·7 | 19 14 | 0·4154 | 17 36·2 | 314 4 | 8 33 | 0· |
| 10 | 22 40·0 | 19 20 | 0·4067 | 17 22·7 | 314 48 | 8 37 | 0· |
| 14 | 22 42·0 | 19 28 | 0·3980 | 17 8·9 | 315 33 | 8 42 | 0· |
| 18 | 22 43·7 | 19 39 | 0·3893 | 16 54·7 | 316 17 | 8 47 | 0· |
| 22 | 22 45·0 | 19 52 | 0·3807 | 16 40·3 | 317 2 | 8 52 | 0 |
| 26 | 22 46·0 | 20 6 | 0·3722 | 16 25·5 | 317 46 | 8 56 | 0 |
| 30 | 22 46·6 | 20 23 | 0·3639 | 16 10·4 | 318 30 | 9 1 | 0 |
| July 4 | 22 46·9 | 20 42 | 0·3557 | 15 54·9 | 319 15 | 9 5 | 0 |
| 8 | 22 46·8 | 21 3 | 0·3478 | 15 39·0 | 319 59 | 9 9 | 0 |
| 12 | 22 46·4 | 21 26 | 0·3403 | 15 22·8 | 320 44 | 9 13 | 0 |
| 16 | 22 45·6 | 21 51 | 0·3332 | 15 6·2 | 321 28 | 9 17 | 0 |
| 20 | 22 44·4 | 22 17 | 0·3266 | 14 49·2 | 322 13 | 9 21 | 0 |
| 24 | 22 42·8 | 22 44 | 0·3206 | 14 31·9 | 322 57 | 9 25 | 0 |
| 28 | 22 40·9 | 23 12 | 0·3153 | 14 14·2 | 323 42 | 9 28 | 0 |
| Aug. 1 | 22 38·7 | 23 40 | 0·3107 | 13 56·2 | 324 26 | 9 32 | 0 |
| 5 | 22 36·1 | 24 9 | 0·3069 | 13 37·9 | 325 11 | 9 35 | 0 |
| 9 | 22 33·2 | 24 37 | 0·3039 | 13 19·3 | 325 55 | 9 39 | 0 |
| 13 | 22 30·2 | 25 5 | 0·3017 | 13 0·5 | 326 40 | 9 42 | 0 |
| 17 | 22 27·0 | 25 31 | 0·3004 | 12 41·5 | 327 24 | 9 46 | 0 |
| 21 | 22 23·6 | 25 55 | 0·3001 | 12 22·4 | 328 9 | 9 49 | 0 |
| 25 | 22 20·2 | 26 17 | 0·3008 | 12 3·3 | 328 53 | 9 52 | 0 |
| 29 | 22 16·7 | 26 37 | 0·3025 | 11 44·1 | 329 38 | 9 55 | 0 |
| Sept. 2 | 22 13·3 | 26 54 | 0·3052 | 11 25·0 | 330 22 | 9 58 | 0 |
| 6 | 22 10·0 | S. 27 8 | 0·3087 | 11 6·1 | 331 7 | S. 10 1 | 0 |

## MEAN TIME.

| Date. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | Right Ascension. | Declination | Log. of Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| 1845. | h m | ° ′ | | h m | ° ′ | ° ′ | |
| Sept. 6 | 22 10·0 | S. 27 8 | 0·3087 | 11 6·1 | 331 7 | S. 10 1 | 0·4749 |
| 10 | 22 6·9 | 27 19 | 0·3130 | 10 47·3 | 331 52 | 10 4 | 0·4749 |
| 14 | 22 4·0 | 27 27 | 0·3181 | 10 28·7 | 332 37 | 10 6 | 0·4748 |
| 18 | 22 1·4 | 27 32 | 0·3239 | 10 10·4 | 333 21 | 10 9 | 0·4748 |
| 22 | 21 59·0 | 27 33 | 0·3303 | 9 52·3 | 334 6 | 10 11 | 0·4747 |
| 26 | 21 57·0 | 27 31 | 0·3373 | 9 34·6 | 334 51 | 10 13 | 0·4747 |
| 30 | 21 55·4 | 27 27 | 0·3448 | 9 17·3 | 335 36 | 10 15 | 0·4746 |
| Oct. 4 | 21 54·2 | 27 20 | 0·3527 | 9 0·4 | 336 20 | 10 17 | 0·4746 |
| 8 | 21 53·3 | 27 10 | 0·3609 | 8 43·9 | 337 5 | 10 19 | 0·4745 |
| 12 | 21 52·8 | 26 58 | 0·3694 | 8 27·8 | 337 50 | 10 21 | 0·4744 |
| 16 | 21 52·7 | 26 43 | 0·3781 | 8 12·0 | 338 35 | 10 23 | 0·4743 |
| 20 | 21 53·0 | 26 26 | 0·3869 | 7 56·6 | 339 20 | 10 25 | 0·4742 |
| 24 | 21 53·6 | 26 8 | 0·3958 | 7 41·6 | 340 5 | 10 26 | 0·4741 |
| 28 | 21 54·6 | 25 48 | 0·4047 | 7 26·9 | 340 50 | 10 28 | 0·4740 |
| Nov. 1 | 21 56·0 | 25 27 | 0·4137 | 7 12·5 | 341 35 | 10 29 | 0·4739 |
| 5 | 21 57·7 | 25 4 | 0·4226 | 6 58·5 | 342 20 | 10 30 | 0·4738 |
| 9 | 21 59·8 | 24 39 | 0·4314 | 6 44·8 | 343 5 | 10 31 | 0·4737 |
| 13 | 22 2·1 | 24 13 | 0·4401 | 6 31·4 | 343 50 | 10 32 | 0·4736 |
| 17 | 22 4·7 | 23 46 | 0·4486 | 6 18·2 | 344 35 | 10 33 | 0·4734 |
| 21 | 22 7·6 | 23 18 | 0·4570 | 6 5·3 | 345 20 | 10 34 | 0·4733 |
| 25 | 22 10·7 | 22 48 | 0·4652 | 5 52·7 | 346 5 | 10 35 | 0·4731 |
| 29 | 22 14·1 | 22 17 | 0·4732 | 5 40·3 | 346 50 | 10 36 | 0·4730 |
| Dec. 3 | 22 17·6 | 21 46 | 0·4810 | 5 28·2 | 347 35 | 10 36 | 0·4728 |
| 7 | 22 21·4 | 21 14 | 0·4885 | 5 16·2 | 348 20 | 10 37 | 0·4727 |
| 11 | 22 25·3 | 20 41 | 0·4958 | 5 4·4 | 349 5 | 10 37 | 0·4725 |
| 15 | 22 29·4 | 20 7 | 0·5028 | 4 52·8 | 349 50 | 10 37 | 0·4723 |
| 19 | 22 33·7 | 19 33 | 0·5096 | 4 41·3 | 350 36 | 10 37 | 0·4721 |
| 23 | 22 38·1 | 18 58 | 0·5161 | 4 30·0 | 351 21 | 10 37 | 0·4719 |
| 27 | 22 42·7 | 18 22 | 0·5224 | 4 18·8 | 352 7 | 10 37 | 0·4717 |
| 31 | 22 47·4 | 17 45 | 0·5284 | 4 7·7 | 352 52 | 10 37 | 0·4715 |
| 35 | 22 52·1 | S. 17 8 | 0·5342 | 3 56·8 | 353 38 | S. 10 36 | 0·4713 |

## EPHEMERIS OF CERES FOR THE OPPOSITION.

At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | ″ |
| July | 21 | 22 43 51 ·54 | — 0 ·95 | S. 22 27 33 ·6 | — 17 ·0 | 4 ·1 |
| | 22 | 22 43 28 ·08 | 1 ·01 | 22 34 23 ·3 | 17 ·1 | 4 ·1 |
| | 23 | 22 43 3 ·28 | 1 ·06 | 22 41 16 ·6 | 17 ·3 | 4 ·1 |
| | 24 | 22 42 37 ·15 | 1 ·12 | 22 48 13 ·2 | 17 ·4 | 4 ·1 |
| | 25 | 22 42 9 ·70 | 1 ·17 | 22 55 12 ·8 | 17 ·5 | 4 ·1 |
| | 26 | 22 41 40 ·95 | 1 ·22 | 23 2 15 ·1 | 17 ·6 | 4 ·1 |
| | 27 | 22 41 10 ·91 | 1 ·28 | 23 9 19 ·6 | 17 ·7 | 4 ·1 |
| | 28 | 22 40 39 ·60 | 1 ·33 | 23 16 26 ·0 | 17 ·8 | 4 ·2 |
| | 29 | 22 40 7 ·05 | 1 ·38 | 23 23 33 ·9 | 17 ·9 | 4 ·2 |
| | 30 | 22 39 33 ·27 | 1 ·43 | 23 30 42 ·8 | 17 ·9 | 4 ·2 |
| | 31 | 22 38 58 ·30 | 1 ·48 | 23 37 52 ·5 | 17 ·9 | 4 ·2 |
| August | 1 | 22 38 22 ·16 | 1 ·53 | 23 45 2 ·4 | 17 ·9 | 4 ·2 |
| | 2 | 22 37 44 ·88 | 1 ·58 | 23 52 12 ·2 | 17 ·9 | 4 ·2 |
| | 3 | 22 37 6 ·50 | 1 ·62 | 23 59 21 ·4 | 17 ·9 | 4 ·2 |
| | 4 | 22 36 27 ·05 | 1 ·67 | 24 6 29 ·5 | 17 ·8 | 4 ·2 |
| | 5 | 22 35 46 ·56 | 1 ·71 | 24 13 36 ·3 | 17 ·7 | 4 ·2 |
| | 6 | 22 35 5 ·07 | 1 ·75 | 24 20 41 ·2 | 17 ·7 | 4 ·2 |
| | 7 | 22 34 22 ·62 | 1 ·79 | 24 27 43 ·7 | 17 ·5 | 4 ·2 |
| | 8 | 22 33 39 ·26 | 1 ·83 | 24 34 43 ·5 | 17 ·4 | 4 ·3 |
| | 9 | 22 32 55 ·02 | 1 ·86 | 24 41 40 ·2 | 17 ·3 | 4 ·3 |
| | 10 | 22 32 9 ·95 | 1 ·89 | 24 48 33 ·3 | 17 ·1 | 4 ·3 |
| | 11 | 22 31 24 ·10 | 1 ·93 | 24 55 22 ·3 | 17 ·0 | 4 ·3 |
| | 12 | 22 30 37 ·50 | 1 ·96 | 25 2 7 ·0 | 16 ·8 | 4 ·3 |
| | 13 | 22 29 50 ·21 | 1 ·98 | 25 8 46 ·9 | 16 ·6 | 4 ·3 |
| | 14 | 22 29 2 ·27 | 2 ·01 | 25 15 21 ·6 | 16 ·3 | 4 ·3 |
| | 15 | 22 28 13 ·73 | 2 ·03 | 25 21 50 ·8 | 16 ·1 | 4 ·3 |
| | 16 | 22 27 24 ·63 | 2 ·06 | 25 28 14 ·1 | 15 ·8 | 4 ·3 |
| | 17 | 22 26 35 ·03 | 2 ·08 | 25 34 31 ·0 | 15 ·6 | 4 ·3 |
| | 18 | 22 25 44 ·98 | 2 ·09 | 25 40 41 ·2 | 15 ·3 | 4 ·3 |
| | 19 | 22 24 54 ·52 | 2 ·11 | 25 46 44 ·4 | 15 ·0 | 4 ·3 |
| 8 | 20 | 22 24 3 ·71 | — 2 ·12 | S. 25 52 40 ·2 | — 14 ·7 | 4 ·3 |

## EPHEMERIS OF CERES FOR THE OPPOSITION.

### At Transit over the Meridian of Greenwich.

| Date. | | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Hor. Par. |
|---|---|---|---|---|---|---|
| 1845. | | h m s | s | ° ′ ″ | ″ | ″ |
| ıgust | 20 | 22 24 3 ·71 | — 2 ·12 | S. 25 52 40 ·2 | — 14 ·7 | 4 ·3 |
| | 21 | 22 23 12 ·60 | 2 ·13 | 25 58 28 ·3 | 14 ·3 | 4 ·3 |
| | 22 | 22 22 21 ·24 | 2 ·14 | 26 4 8 ·3 | 14 ·0 | 4 ·3 |
| | 23 | 22 21 29 ·68 | 2 ·15 | 26 9 39 ·9 | 13 ·6 | 4 ·3 |
| | 24 | 22 20 37 ·98 | 2 ·16 | 26 15 2 ·7 | 13 ·3 | 4 ·3 |
| | 25 | 22 19 46 ·20 | 2 ·16 | 26 20 16 ·5 | 12 ·9 | 4 ·3 |
| | 26 | 22 18 54 ·40 | 2 ·16 | 26 25 20 ·9 | 12 ·5 | 4 ·3 |
| | 27 | 22 18 2 ·62 | 2 ·16 | 26 30 15 ·7 | 12 ·1 | 4 ·3 |
| | 28 | 22 17 10 ·95 | 2 ·15 | 26 35 0 ·6 | 11 ·7 | 4 ·3 |
| | 29 | 22 16 19 ·42 | 2 ·14 | 26 39 35 ·3 | 11 ·2 | 4 ·3 |
| | 30 | 22 15 28 ·10 | 2 ·13 | 26 43 59 ·6 | 10 ·8 | 4 ·3 |
| | 31 | 22 14 37 ·06 | 2 ·12 | 26 48 13 ·3 | 10 ·3 | 4 ·3 |
| ptember | 1 | 22 13 46 ·33 | 2 ·11 | 26 52 16 ·1 | 9 ·9 | 4 ·3 |
| | 2 | 22 12 56 ·00 | 2 ·09 | 26 56 7 ·9 | 9 ·4 | 4 ·2 |
| | 3 | 22 12 6 ·11 | 2 ·07 | 26 59 48 ·5 | 9 ·0 | 4 ·2 |
| | 4 | 22 11 16 ·71 | 2 ·05 | 27 3 17 ·8 | 8 ·5 | 4 ·2 |
| | 5 | 22 10 27 ·88 | 2 ·02 | 27 6 35 ·6 | 8 ·0 | 4 ·2 |
| | 6 | 22 9 39 ·64 | 2 ·00 | 27 9 41 ·8 | 7 ·5 | 4 ·2 |
| | 7 | 22 8 52 ·07 | 1 ·97 | 27 12 36 ·4 | 7 ·0 | 4 ·2 |
| | 8 | 22 8 5 ·22 | 1 ·94 | 27 15 19 ·2 | 6 ·5 | 4 ·2 |
| | 9 | 22 7 19 ·12 | 1 ·90 | 27 17 50 ·3 | 6 ·1 | 4 ·2 |
| | 10 | 22 6 33 ·83 | 1 ·87 | 27 20 9 ·6 | 5 ·6 | 4 ·2 |
| | 11 | 22 5 49 ·39 | 1 ·83 | 27 22 17 ·1 | 5 ·1 | 4 ·2 |
| | 12 | 22 5 5 ·84 | 1 ·80 | 27 24 12 ·7 | 4 ·6 | 4 ·1 |
| | 13 | 22 4 23 ·22 | 1 ·76 | 27 25 56 ·5 | 4 ·1 | 4 ·1 |
| | 14 | 22 3 41 ·58 | 1 ·71 | 27 27 28 ·6 | 3 ·6 | 4 ·1 |
| | 15 | 22 3 0 ·94 | 1 ·67 | 27 28 49 ·0 | 3 ·1 | 4 ·1 |
| | 16 | 22 2 21 ·35 | 1 ·63 | 27 29 57 ·7 | 2 ·6 | 4 ·1 |
| | 17 | 22 1 42 ·84 | 1 ·58 | 27 30 54 ·8 | 2 ·1 | 4 ·1 |
| | 18 | 22 1 5 ·44 | 1 ·53 | 27 31 40 ·3 | 1 ·7 | 4 ·1 |
| | 19 | 22 0 29 ·19 | — 1 ·49 | S. 27 32 14 ·3 | — 1 ·2 | 4 ·1 |

# JANUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 23 51 31·19 | S. 2 18 34·1 | 0·7071611 | 5 6·8 | 8 15 21·5 | S. 1 18 42·2 | 0·694 |
| 2 | 23 52 0·71 | 2 15 7·1 | ·7084725 | 5 3·4 | 8 20 51·5 | 1 18 42·2 | ·694 |
| 3 | 23 52 30·77 | 2 11 36·7 | ·7097748 | 4 59·9 | 8 26 21·5 | 1 18 42·3 | ·694 |
| 4 | 23 53 1·38 | 2 8 2·9 | ·7110680 | 4 56·5 | 8 31 51·5 | 1 18 42·4 | ·694 |
| 5 | 23 53 32·52 | 2 4 25·7 | ·7123517 | 4 53·1 | 8 37 21·5 | 1 18 42·4 | ·694 |
| 6 | 23 54 4·18 | 2 0 45·2 | ·7136257 | 4 49·7 | 8 42 51·5 | 1 18 42·4 | ·694 |
| 7 | 23 54 36·37 | 1 57 1·4 | ·7148897 | 4 46·3 | 8 48 21·5 | 1 18 42·4 | ·694 |
| 8 | 23 55 9·07 | 1 53 14·4 | ·7161436 | 4 42·9 | 8 53 51·5 | 1 18 42·4 | ·694 |
| 9 | 23 55 42·28 | 1 49 24·3 | ·7173872 | 4 39·5 | 8 59 21·5 | 1 18 42·4 | ·694 |
| 10 | 23 56 15·99 | 1 45 31·1 | ·7186203 | 4 36·2 | 9 4 51·5 | 1 18 42·4 | ·694 |
| 11 | 23 56 50·19 | 1 41 34·8 | ·7198426 | 4 32·8 | 9 10 21·5 | 1 18 42·3 | ·694 |
| 12 | 23 57 24·87 | 1 37 35·5 | ·7210540 | 4 29·4 | 9 15 51·5 | 1 18 42·3 | ·694 |
| 13 | 23 58 0·03 | 1 33 33·3 | ·7222542 | 4 26·1 | 9 21 21·6 | 1 18 42·2 | ·694 |
| 14 | 23 58 35·66 | 1 29 28·1 | ·7234431 | 4 22·7 | 9 26 51·6 | 1 18 42·1 | ·694 |
| 15 | 23 59 11·74 | 1 25 20·1 | ·7246206 | 4 19·4 | 9 32 21·6 | 1 18 42·1 | ·694 |
| 16 | 23 59 48·28 | 1 21 9·3 | ·7257865 | 4 16·1 | 9 37 51·6 | 1 18 42·0 | ·694 |
| 17 | 0 0 25·26 | 1 16 55·8 | ·7269407 | 4 12·8 | 9 43 21·6 | 1 18 41·8 | ·694 |
| 18 | 0 1 2·68 | 1 12 39·5 | ·7280831 | 4 9·5 | 9 48 51·7 | 1 18 41·7 | ·694 |
| 19 | 0 1 40·53 | 1 8 20·6 | ·7292135 | 4 6·2 | 9 54 21·7 | 1 18 41·6 | ·694 |
| 20 | 0 2 18·80 | 1 3 59·1 | ·7303319 | 4 2·9 | 9 59 51·7 | 1 18 41·5 | ·694 |
| 21 | 0 2 57·49 | 0 59 35·1 | ·7314382 | 3 59·6 | 10 5 21·7 | 1 18 41·3 | ·694 |
| 22 | 0 3 36·58 | 0 55 8·6 | ·7325322 | 3 56·3 | 10 10 51·7 | 1 18 41·1 | ·694 |
| 23 | 0 4 16·08 | 0 50 39·6 | ·7336139 | 3 53·0 | 10 16 21·8 | 1 18 40·9 | ·694 |
| 24 | 0 4 55·97 | 0 46 8·2 | ·7346832 | 3 49·8 | 10 21 51·8 | 1 18 40·7 | ·694 |
| 25 | 0 5 36·25 | 0 41 34·4 | ·7357399 | 3 46·5 | 10 27 21·8 | 1 18 40·5 | ·694 |
| 26 | 0 6 16·91 | 0 36 58·3 | ·7367841 | 3 43·2 | 10 32 51·8 | 1 18 40·3 | ·694 |
| 27 | 0 6 57·96 | 0 32 19·9 | ·7378155 | 3 40·0 | 10 38 21·8 | 1 18 40·1 | ·694 |
| 28 | 0 7 39·37 | 0 27 39·3 | ·7388341 | 3 36·7 | 10 43 51·8 | 1 18 39·8 | ·694 |
| 29 | 0 8 21·15 | 0 22 56·5 | ·7398398 | 3 33·5 | 10 49 21·8 | 1 18 39·6 | ·694 |
| 30 | 0 9 3·29 | 0 18 11·5 | ·7408324 | 3 30·3 | 10 54 51·8 | 1 18 39·3 | ·694 |
| 31 | 0 9 45·78 | 0 13 24·4 | ·7418120 | 3 27·0 | 11 0 21·8 | 1 18 39·1 | ·694 |
| 32 | 0 10 28·62 | S. 0 8 35·2 | 0·7427784 | 3 23·8 | 11 5 51·8 | S. 1 18 38·8 | 0·694 |

# JANUARY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 23 51 37 ·43 | + 1 ·22 | 1 ·30 | S. 2 17 50 ·3 | + 8 ·6 | 18 ·2 | 1 ·7 |
| 23 52 6 ·99 | 1 ·24 | 1 ·30 | 2 14 23 ·1 | 8 ·7 | 18 ·1 | 1 ·7 |
| 23 52 37 ·10 | 1 ·27 | 1 ·30 | 2 10 52 ·5 | 8 ·8 | 18 ·0 | 1 ·7 |
| 23 53 7 ·75 | 1 ·29 | 1 ·30 | 2 7 18 ·4 | 9 ·0 | 18 ·0 | 1 ·7 |
| 23 53 38 ·92 | 1 ·31 | 1 ·29 | 2 3 41 ·1 | 9 ·1 | 17 ·9 | 1 ·7 |
| 23 54 10 ·62 | 1 ·33 | 1 ·29 | 2 0 0 ·5 | 9 ·3 | 17 ·9 | 1 ·7 |
| 23 54 42 ·83 | 1 ·35 | 1 ·28 | 1 56 16 ·5 | 9 ·4 | 17 ·8 | 1 ·7 |
| 23 55 15 ·56 | 1 ·37 | 1 ·28 | 1 52 29 ·5 | 9 ·5 | 17 ·8 | 1 ·6 |
| 23 55 48 ·79 | 1 ·39 | 1 ·27 | 1 48 39 ·3 | 9 ·7 | 17 ·7 | 1 ·6 |
| 23 56 22 ·51 | 1 ·42 | 1 ·27 | 1 44 46 ·0 | 9 ·8 | 17 ·7 | 1 ·6 |
| 23 56 56 ·72 | 1 ·44 | 1 ·27 | 1 40 49 ·7 | 9 ·9 | 17 ·6 | 1 ·6 |
| 23 57 31 ·42 | 1 ·46 | 1 ·27 | 1 36 50 ·4 | 10 ·0 | 17 ·6 | 1 ·6 |
| 23 58 6 ·58 | 1 ·48 | 1 ·26 | 1 32 48 ·2 | 10 ·1 | 17 ·5 | 1 ·6 |
| 23 58 42 ·21 | 1 ·49 | 1 ·26 | 1 28 43 ·1 | 10 ·3 | 17 ·5 | 1 ·6 |
| 23 59 18 ·29 | 1 ·51 | 1 ·26 | 1 24 35 ·1 | 10 ·4 | 17 ·4 | 1 ·6 |
| 23 59 54 ·83 | 1 ·53 | 1 ·26 | 1 20 24 ·4 | 10 ·5 | 17 ·4 | 1 ·6 |
| 0 0 31 ·80 | 1 ·55 | 1 ·25 | 1 16 11 ·0 | 10 ·6 | 17 ·3 | 1 ·6 |
| 0 1 9 ·21 | 1 ·57 | 1 ·25 | 1 11 54 ·8 | 10 ·7 | 17 ·3 | 1 ·6 |
| 0 1 47 ·04 | 1 ·59 | 1 ·24 | 1 7 36 ·1 | 10 ·8 | 17 ·2 | 1 ·6 |
| 0 2 25 ·29 | 1 ·60 | 1 ·23 | 1 3 14 ·8 | 10 ·9 | 17 ·2 | 1 ·6 |
| 0 3 3 ·96 | 1 ·62 | 1 ·23 | 0 58 50 ·9 | 11 ·0 | 17 ·2 | 1 ·6 |
| 0 3 43 ·03 | 1 ·64 | 1 ·23 | 0 54 24 ·6 | 11 ·1 | 17 ·1 | 1 ·6 |
| 0 4 22 ·50 | 1 ·65 | 1 ·23 | 0 49 55 ·8 | 11 ·2 | 17 ·1 | 1 ·6 |
| 0 5 2 ·37 | 1 ·67 | 1 ·23 | 0 45 24 ·6 | 11 ·3 | 17 ·1 | 1 ·6 |
| 0 5 42 ·62 | 1 ·69 | 1 ·22 | 0 40 51 ·1 | 11 ·4 | 17 ·0 | 1 ·6 |
| 0 6 23 ·25 | 1 ·70 | 1 ·22 | 0 36 15 ·3 | 11 ·5 | 17 ·0 | 1 ·6 |
| 0 7 4 ·26 | 1 ·72 | 1 ·22 | 0 31 37 ·2 | 11 ·6 | 16 ·9 | 1 ·6 |
| 0 7 45 ·63 | 1 ·73 | 1 ·22 | 0 26 56 ·9 | 11 ·7 | 16 ·9 | 1 ·6 |
| 0 8 27 ·37 | 1 ·75 | 1 ·22 | 0 22 14 ·4 | 11 ·8 | 16 ·9 | 1 ·6 |
| 0 9 9 ·47 | 1 ·76 | 1 ·21 | 0 17 29 ·7 | 11 ·9 | 16 ·8 | 1 ·6 |
| 0 9 51 ·92 | 1 ·78 | 1 ·21 | 0 12 43 ·0 | 12 ·0 | 16 ·8 | 1 ·6 |
| 0 10 34 ·71 | + 1 ·79 | 1 ·20 | S. 0 7 54 ·1 | +12 ·1 | 16 ·7 | 1 ·6 |

# FEBRUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 10 28·62 | S. 0 8 35·2 | 0·7427784 | 3 23·8 | 11 5 51·8 | S. 1 18 38·8 | 0·69 |
| 2 | 0 11 11·81 | S. 0 3 43·9 | ·7437314 | 3 20·6 | 11 11 21·8 | 1 18 38·5 | ·69 |
| 3 | 0 11 55·33 | N. 0 1 9·3 | ·7446710 | 3 17·4 | 11 16 51·8 | 1 18 38·1 | ·69 |
| 4 | 0 12 39·19 | 0 6 4·5 | ·7455970 | 3 14·2 | 11 22 21·8 | 1 18 37·8 | ·69 |
| 5 | 0 13 23·37 | 0 11 1·5 | ·7465094 | 3 11·0 | 11 27 51·8 | 1 18 37·5 | ·69 |
| 6 | 0 14 7·86 | 0 16 0·4 | ·7474081 | 3 7·8 | 11 33 21·8 | 1 18 37·1 | ·69 |
| 7 | 0 14 52·67 | 0 21 1·1 | ·7482929 | 3 4·6 | 11 38 51·8 | 1 18 36·7 | ·69 |
| 8 | 0 15 37·79 | 0 26 3·5 | ·7491638 | 3 1·4 | 11 44 21·8 | 1 18 36·4 | ·69 |
| 9 | 0 16 23·21 | 0 31 7·6 | ·7500206 | 2 58·3 | 11 49 51·8 | 1 18 36·0 | ·69 |
| 10 | 0 17 8·92 | 0 36 13·3 | ·7508635 | 2 55·1 | 11 55 21·8 | 1 18 35·6 | ·69 |
| 11 | 0 17 54·91 | 0 41 20·7 | ·7516922 | 2 51·9 | 12 0 51·8 | 1 18 35·2 | ·69 |
| 12 | 0 18 41·18 | 0 46 29·6 | ·7525068 | 2 48·7 | 12 6 21·8 | 1 18 34·8 | ·69 |
| 13 | 0 19 27·72 | 0 51 40·0 | ·7533072 | 2 45·6 | 12 11 51·8 | 1 18 34·3 | ·69 |
| 14 | 0 20 14·53 | 0 56 51·9 | ·7540933 | 2 42·4 | 12 17 21·7 | 1 18 33·9 | ·69 |
| 15 | 0 21 1·59 | 1 2 5·2 | ·7548651 | 2 39·3 | 12 22 51·7 | 1 18 33·4 | ·69 |
| 16 | 0 21 48·91 | 1 7 19·9 | ·7556227 | 2 36·1 | 12 28 21·7 | 1 18 33·0 | ·69 |
| 17 | 0 22 36·48 | 1 12 35·9 | ·7563659 | 2 33·0 | 12 33 51·7 | 1 18 32·5 | ·69 |
| 18 | 0 23 24·29 | 1 17 53·2 | ·7570948 | 2 29·8 | 12 39 21·7 | 1 18 31·9 | ·69 |
| 19 | 0 24 12·33 | 1 23 11·7 | ·7578094 | 2 26·7 | 12 44 51·7 | 1 18 31·4 | ·69 |
| 20 | 0 25 0·61 | 1 28 31·4 | ·7585096 | 2 23·6 | 12 50 21·6 | 1 18 30·9 | ·69 |
| 21 | 0 25 49·11 | 1 33 52·2 | ·7591955 | 2 20·4 | 12 55 51·6 | 1 18 30·4 | ·69 |
| 22 | 0 26 37·84 | 1 39 14·2 | ·7598669 | 2 17·3 | 13 1 21·6 | 1 18 29·8 | ·69 |
| 23 | 0 27 26·78 | 1 44 37·2 | ·7605240 | 2 14·2 | 13 6 51·5 | 1 18 29·3 | ·69 |
| 24 | 0 28 15·93 | 1 50 1·3 | ·7611666 | 2 11·1 | 13 12 21·5 | 1 18 28·7 | ·69 |
| 25 | 0 29 5·29 | 1 55 26·4 | ·7617948 | 2 8·0 | 13 17 51·5 | 1 18 28·2 | ·69 |
| 26 | 0 29 54·86 | 2 0 52·5 | ·7624086 | 2 4·9 | 13 23 21·4 | 1 18 27·6 | ·69 |
| 27 | 0 30 44·62 | 2 6 19·6 | ·7630078 | 2 1·8 | 13 28 51·4 | 1 18 27·0 | ·69 |
| 28 | 0 31 34·58 | 2 11 47·5 | ·7635925 | 1 58·7 | 13 34 21·3 | 1 18 26·4 | ·69 |
| 29 | 0 32 24·72 | N. 2 17 16·3 | 0·7641625 | 1 55·6 | 13 39 51·2 | S. 1 18 25·8 | 0·69 |

# FEBRUARY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 10 34 ·71 | + 1 ·79 | 1 ·20 | S. 0 7 54 ·1 | +12 ·1 | 16 ·7 | 1 ·6 |
| 11 17 ·85 | 1 ·80 | 1 ·20 | S. 0 3 3 ·2 | 12 ·2 | 16 ·7 | 1 ·5 |
| 12 1 ·32 | 1 ·82 | 1 ·19 | N. 0 1 49 ·6 | 12 ·2 | 16 ·6 | 1 ·5 |
| 12 45 ·12 | 1 ·83 | 1 ·19 | 0 6 44 ·4 | 12 ·3 | 16 ·6 | 1 ·5 |
| 13 29 ·25 | 1 ·85 | 1 ·19 | 0 11 41 ·0 | 12 ·4 | 16 ·5 | 1 ·5 |
| 14 13 ·69 | 1 ·86 | 1 ·19 | 0 16 39 ·5 | 12 ·5 | 16 ·5 | 1 ·5 |
| 14 58 ·44 | 1 ·87 | 1 ·19 | 0 21 39 ·7 | 12 ·5 | 16 ·5 | 1 ·5 |
| 15 43 ·49 | 1 ·88 | 1 ·18 | 0 26 41 ·7 | 12 ·6 | 16 ·5 | 1 ·5 |
| 16 28 ·85 | 1 ·90 | 1 ·18 | 0 31 45 ·3 | 12 ·7 | 16 ·4 | 1 ·5 |
| 17 14 ·49 | 1 ·91 | 1 ·18 | 0 36 50 ·6 | 12 ·8 | 16 ·4 | 1 ·5 |
| 18 0 ·42 | 1 ·92 | 1 ·18 | 0 41 57 ·5 | 12 ·8 | 16 ·4 | 1 ·5 |
| 18 46 ·62 | 1 ·93 | 1 ·18 | 0 47 5 ·9 | 12 ·9 | 16 ·3 | 1 ·5 |
| 19 33 ·09 | 1 ·94 | 1 ·18 | 0 52 15 ·8 | 12 ·9 | 16 ·3 | 1 ·5 |
| 20 19 ·82 | 1 ·95 | 1 ·18 | 0 57 27 ·2 | 13 ·0 | 16 ·3 | 1 ·5 |
| 21 6 ·81 | 1 ·96 | 1 ·17 | 1 2 40 ·0 | 13 ·1 | 16 ·2 | 1 ·5 |
| 21 54 ·05 | 1 ·97 | 1 ·17 | 1 7 54 ·1 | 13 ·1 | 16 ·2 | 1 ·5 |
| 22 41 ·54 | 1 ·98 | 1 ·17 | 1 13 9 ·6 | 13 ·2 | 16 ·2 | 1 ·5 |
| 23 29 ·27 | 1 ·99 | 1 ·17 | 1 18 26 ·3 | 13 ·2 | 16 ·1 | 1 ·5 |
| 24 17 ·24 | 2 ·00 | 1 ·17 | 1 23 44 ·2 | 13 ·3 | 16 ·1 | 1 ·5 |
| 25 5 ·44 | 2 ·01 | 1 ·17 | 1 29 3 ·3 | 13 ·3 | 16 ·1 | 1 ·5 |
| 25 53 ·86 | 2 ·02 | 1 ·17 | 1 34 23 ·6 | 13 ·4 | 16 ·1 | 1 ·5 |
| 26 42 ·50 | 2 ·03 | 1 ·16 | 1 39 44 ·9 | 13 ·4 | 16 ·0 | 1 ·5 |
| 27 31 ·35 | 2 ·04 | 1 ·16 | 1 45 7 ·4 | 13 ·5 | 16 ·0 | 1 ·5 |
| 28 20 ·42 | 2 ·05 | 1 ·16 | 1 50 30 ·9 | 13 ·5 | 16 ·0 | 1 ·5 |
| 29 9 ·69 | 2 ·06 | 1 ·16 | 1 55 55 ·4 | 13 ·5 | 16 ·0 | 1 ·5 |
| 29 59 ·16 | 2 ·07 | 1 ·15 | 2 1 20 ·8 | 13 ·6 | 15 ·9 | 1 ·5 |
| 30 48 ·83 | 2 ·07 | 1 ·15 | 2 6 47 ·2 | 13 ·6 | 15 ·9 | 1 ·5 |
| 31 38 ·70 | 2 ·08 | 1 ·15 | 2 12 14 ·6 | 13 ·7 | 15 ·9 | 1 ·5 |
| 32 28 ·75 | + 2 ·09 | 1 ·15 | N. 2 17 42 ·7 | +13 ·7 | 15 ·9 | 1 ·5 |

# MARCH, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | No |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 32 24·72 | N.2 17 16·3 | 0·7641625 | 1 55·6 | 13 39 51·2 | S.1 18 25·8 | 0·694 |
| 2 | 0 33 15·05 | 2 22 45·9 | ·7647180 | 1 52·5 | 13 45 21·2 | 1 18 25·2 | ·694 |
| 3 | 0 34 5·56 | 2 28 16·3 | ·7652588 | 1 49·4 | 13 50 51·1 | 1 18 24·5 | ·694 |
| 4 | 0 34 56·25 | 2 33 47·4 | ·7657849 | 1 46·3 | 13 56 21·1 | 1 18 23·9 | ·694 |
| 5 | 0 35 47·10 | 2 39 19·2 | ·7662962 | 1 43·2 | 14 1 51·0 | 1 18 23·2 | ·694 |
| 6 | 0 36 38·12 | 2 44 51·7 | ·7667927 | 1 40·1 | 14 7 20·9 | 1 18 22·5 | ·694 |
| 7 | 0 37 29·30 | 2 50 24·8 | ·7672744 | 1 37·0 | 14 12 50·9 | 1 18 21·8 | ·694 |
| 8 | 0 38 20·63 | 2 55 58·5 | ·7677413 | 1 34·0 | 14 18 20·8 | 1 18 21·1 | ·694 |
| 9 | 0 39 12·11 | 3 1 32·7 | ·7681932 | 1 30·9 | 14 23 50·7 | 1 18 20·4 | ·694 |
| 10 | 0 40 3·74 | 3 7 7·4 | ·7686302 | 1 27·8 | 14 29 20·6 | 1 18 19·7 | ·694 |
| 11 | 0 40 55·50 | 3 12 42·6 | ·7690523 | 1 24·8 | 14 34 50·5 | 1 18 19·0 | ·694 |
| 12 | 0 41 47·40 | 3 18 18·1 | ·7694595 | 1 21·7 | 14 40 20·4 | 1 18 18·2 | ·694 |
| 13 | 0 42 39·42 | 3 23 54·1 | ·7698518 | 1 18·6 | 14 45 50·3 | 1 18 17·4 | ·694 |
| 14 | 0 43 31·57 | 3 29 30·3 | ·7702292 | 1 15·5 | 14 51 20·3 | 1 18 16·7 | ·694 |
| 15 | 0 44 23·83 | 3 35 6·8 | ·7705917 | 1 12·5 | 14 56 50·2 | 1 18 15·9 | ·694 |
| 16 | 0 45 16·20 | 3 40 43·5 | ·7709393 | 1 9·4 | 15 2 20·1 | 1 18 15·1 | ·694 |
| 17 | 0 46 8·68 | 3 46 20·5 | ·7712721 | 1 6·3 | 15 7 50·0 | 1 18 14·3 | ·694 |
| 18 | 0 47 1·26 | 3 51 57·6 | ·7715901 | 1 3·3 | 15 13 19·9 | 1 18 13·4 | ·694 |
| 19 | 0 47 53·94 | 3 57 34·8 | ·7718933 | 1 0·2 | 15 18 49·7 | 1 18 12·6 | ·694 |
| 20 | 0 48 46·71 | 4 3 12·2 | ·7721817 | 0 57·2 | 15 24 19·7 | 1 18 11·7 | ·694 |
| 21 | 0 49 39·57 | 4 8 49·6 | ·7724554 | 0 54·1 | 15 29 49·6 | 1 18 10·8 | ·694 |
| 22 | 0 50 32·52 | 4 14 27·1 | ·7727143 | 0 51·1 | 15 35 19·5 | 1 18 9·9 | ·694 |
| 23 | 0 51 25·55 | 4 20 4·6 | ·7729585 | 0 48·0 | 15 40 49·3 | 1 18 9·0 | ·694 |
| 24 | 0 52 18·65 | 4 25 42·0 | ·7731880 | 0 45·0 | 15 46 19·2 | 1 18 8·1 | ·694 |
| 25 | 0 53 11·83 | 4 31 19·4 | ·7734028 | 0 41·9 | 15 51 49·1 | 1 18 7·2 | ·694 |
| 26 | 0 54 5·09 | 4 36 56·7 | ·7736029 | 0 38·9 | 15 57 18·9 | 1 18 6·2 | ·694 |
| 27 | 0 54 58·41 | 4 42 33·8 | ·7737884 | 0 35·8 | 16 2 48·8 | 1 18 5·3 | ·694 |
| 28 | 0 55 51·79 | 4 48 10·8 | ·7739591 | 0 32·8 | 16 8 18·6 | 1 18 4·3 | ·694 |
| 29 | 0 56 45·23 | 4 53 47·6 | ·7741151 | 0 29·7 | 16 13 48·5 | 1 18 3·3 | ·694 |
| 30 | 0 57 38·72 | 4 59 24·2 | ·7742564 | 0 26·7 | 16 19 18·3 | 1 18 2·3 | ·694 |
| 31 | 0 58 32·27 | 5 5 0·6 | ·7743829 | 0 23·6 | 16 24 48·1 | 1 18 1·3 | ·694 |
| 32 | 0 59 25·87 | N.5 10 36·6 | 0·7744947 | 0 20·6 | 16 30 18·0 | S.1 18 0·3 | 0·694 |

# MARCH, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 32 28 ·75 | + 2 ·09 | 1 ·15 | N. 2 17 42 ·7 | + 13 ·7 | 15 ·9 | 1 ·5 |
| 0 33 18 ·99 | 2 ·10 | 1 ·14 | 2 23 11 ·7 | 13 ·7 | 15 ·9 | 1 ·5 |
| 0 34 9 ·40 | 2 ·10 | 1 ·14 | 2 28 41 ·4 | 13 ·8 | 15 ·9 | 1 ·5 |
| 0 34 59 ·99 | 2 ·11 | 1 ·14 | 2 34 11 ·9 | 13 ·8 | 15 ·9 | 1 ·5 |
| 0 35 50 ·75 | 2 ·12 | 1 ·14 | 2 39 43 ·0 | 13 ·8 | 15 ·9 | 1 ·5 |
| 0 36 41 ·67 | 2 ·13 | 1 ·14 | 2 45 14 ·9 | 13 ·8 | 15 ·9 | 1 ·5 |
| 0 37 32 ·75 | 2 ·13 | 1 ·14 | 2 50 47 ·3 | 13 ·9 | 15 ·8 | 1 ·5 |
| 0 38 23 ·98 | 2 ·14 | 1 ·14 | 2 56 20 ·3 | 13 ·9 | 15 ·8 | 1 ·5 |
| 0 39 15 ·37 | 2 ·14 | 1 ·14 | 3 1 53 ·8 | 13 ·9 | 15 ·8 | 1 ·5 |
| 0 40 6 ·89 | 2 ·15 | 1 ·14 | 3 7 27 ·9 | 13 ·9 | 15 ·8 | 1 ·5 |
| 0 40 58 ·55 | 2 ·16 | 1 ·14 | 3 13 2 ·3 | 13 ·9 | 15 ·8 | 1 ·5 |
| 0 41 50 ·35 | 2 ·16 | 1 ·14 | 3 18 37 ·2 | 14 ·0 | 15 ·8 | 1 ·5 |
| 0 42 42 ·27 | 2 ·17 | 1 ·13 | 3 24 12 ·4 | 14 ·0 | 15 ·7 | 1 ·5 |
| 0 43 34 ·31 | 2 ·17 | 1 ·13 | 3 29 47 ·9 | 14 ·0 | 15 ·7 | 1 ·5 |
| 0 44 26 ·46 | 2 ·18 | 1 ·13 | 3 35 23 ·7 | 14 ·0 | 15 ·7 | 1 ·5 |
| 0 45 18 ·73 | 2 ·18 | 1 ·13 | 3 40 59 ·8 | 14 ·0 | 15 ·7 | 1 ·5 |
| 0 46 11 ·10 | 2 ·18 | 1 ·13 | 3 46 36 ·0 | 14 ·0 | 15 ·7 | 1 ·5 |
| 0 47 3 ·57 | 2 ·19 | 1 ·13 | 3 52 12 ·4 | 14 ·0 | 15 ·7 | 1 ·5 |
| 0 47 56 ·14 | 2 ·19 | 1 ·13 | 3 57 48 ·9 | 14 ·0 | 15 ·7 | 1 ·5 |
| 0 48 48 ·81 | 2 ·20 | 1 ·12 | 4 3 25 ·6 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 49 41 ·56 | 2 ·20 | 1 ·12 | 4 9 2 ·3 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 50 34 ·40 | 2 ·20 | 1 ·12 | 4 14 39 ·1 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 51 27 ·32 | 2 ·21 | 1 ·12 | 4 20 15 ·8 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 52 20 ·31 | 2 ·21 | 1 ·12 | 4 25 52 ·6 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 53 13 ·38 | 2 ·21 | 1 ·12 | 4 31 29 ·2 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 54 6 ·53 | 2 ·22 | 1 ·12 | 4 37 5 ·8 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 54 59 ·74 | 2 ·22 | 1 ·12 | 4 42 42 ·2 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 55 53 ·01 | 2 ·22 | 1 ·12 | 4 48 18 ·5 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 56 46 ·33 | 2 ·22 | 1 ·12 | 4 53 54 ·6 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 57 39 ·71 | 2 ·23 | 1 ·12 | 4 59 30 ·5 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 58 33 ·15 | 2 ·23 | 1 ·12 | 5 5 6 ·1 | 14 ·0 | 15 ·6 | 1 ·4 |
| 0 59 26 ·64 | + 2 ·23 | 1 ·12 | N. 5 10 41 ·4 | + 14 ·0 | 15 ·6 | 1 ·4 |

# APRIL, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 59 25·87 | N.5 10 36·6 | 0·7744947 | 0 20·6 | 16 30 18·0 | S.1 18 0·3 | 0·69 |
| 2 | 1 0 19·51 | 5 16 12·3 | ·7745917 | 0 17·5 | 16 35 47·8 | 1 17 59·3 | ·69 |
| 3 | 1 1 13·19 | 5 21 47·7 | ·7746739 | 0 14·5 | 16 41 17·7 | 1 17 58·2 | ·69 |
| 4 | 1 2 6·90 | 5 27 22·7 | ·7747413 | 0 11·5 | 16 46 47·5 | 1 17 57·2 | ·69 |
| 5 | 1 3 0·64 | 5 32 57·2 | ·7747939 | 0 8·4 | 16 52 17·3 | 1 17 56·1 | ·69 |
| 6 | 1 3 54·41 | 5 38 31·3 | ·7748317 | 0 5·4 | 16 57 47·1 | 1 17 55·0 | ·69 |
| 7 | 1 4 48·19 | 5 44 4·9 | ·7748547 | {0 23·3 / 23 59·3} | 17 3 16·9 | 1 17 53·9 | ·69 |
| 8 | 1 5 41·99 | 5 49 37·9 | ·7748629 | 23 56·2 | 17 8 46·8 | 1 17 52·8 | ·69 |
| 9 | 1 6 35·80 | 5 55 10·4 | ·7748563 | 23 53·2 | 17 14 16·6 | 1 17 51·7 | ·69 |
| 10 | 1 7 29·62 | 6 0 42·2 | ·7748349 | 23 50·2 | 17 19 46·4 | 1 17 50·6 | ·69 |
| 11 | 1 8 23·43 | 6 6 13·4 | ·7747989 | 23 47·1 | 17 25 16·2 | 1 17 49·4 | ·69 |
| 12 | 1 9 17·24 | 6 11 43·8 | ·7747482 | 23 44·1 | 17 30 46·0 | 1 17 48·3 | ·69 |
| 13 | 1 10 11·04 | 6 17 13·6 | ·7746829 | 23 41·1 | 17 36 15·8 | 1 17 47·1 | ·69 |
| 14 | 1 11 4·82 | 6 22 42·6 | ·7746030 | 23 38·0 | 17 41 45·6 | 1 17 45·9 | ·69 |
| 15 | 1 11 58·58 | 6 28 10·8 | ·7745085 | 23 35·0 | 17 47 15·4 | 1 17 44·8 | ·69 |
| 16 | 1 12 52·32 | 6 33 38·3 | ·7743995 | 23 31·9 | 17 52 45·2 | 1 17 43·6 | ·69 |
| 17 | 1 13 46·03 | 6 39 4·9 | ·7742761 | 23 28·9 | 17 58 14·9 | 1 17 42·4 | ·69 |
| 18 | 1 14 39·72 | 6 44 30·6 | ·7741383 | 23 25·8 | 18 3 44·7 | 1 17 41·1 | ·69 |
| 19 | 1 15 33·37 | 6 49 55·4 | ·7739860 | 23 22·8 | 18 9 14·5 | 1 17 40·0 | ·69 |
| 20 | 1 16 26·99 | 6 55 19·3 | ·7738194 | 23 19·8 | 18 14 44·3 | 1 17 38·8 | ·69 |
| 21 | 1 17 20·56 | 7 0 42·3 | ·7736385 | 23 16·7 | 18 20 14·1 | 1 17 37·5 | ·69 |
| 22 | 1 18 14·09 | 7 6 4·3 | ·7734432 | 23 13·7 | 18 25 43·9 | 1 17 36·3 | ·69 |
| 23 | 1 19 7·57 | 7 11 25·3 | ·7732336 | 23 10·6 | 18 31 13·6 | 1 17 35·0 | ·69 |
| 24 | 1 20 1·01 | 7 16 45·3 | ·7730097 | 23 7·6 | 18 36 43·4 | 1 17 33·7 | ·69 |
| 25 | 1 20 54·38 | 7 22 4·2 | ·7727715 | 23 4·5 | 18 42 13·2 | 1 17 32·4 | ·69 |
| 26 | 1 21 47·70 | 7 27 22·1 | ·7725191 | 23 1·5 | 18 47 42·9 | 1 17 31·1 | ·69 |
| 27 | 1 22 40·95 | 7 32 38·8 | ·7722523 | 22 58·4 | 18 53 12·7 | 1 17 29·8 | ·69 |
| 28 | 1 23 34·14 | 7 37 54·4 | ·7719713 | 22 55·4 | 18 58 42·4 | 1 17 28·5 | ·69 |
| 29 | 1 24 27·26 | 7 43 8·8 | ·7716760 | 22 52·3 | 19 4 12·1 | 1 17 27·2 | ·69 |
| 30 | 1 25 20·29 | 7 48 22·1 | ·7713664 | 22 49·3 | 19 9 41·8 | 1 17 25·9 | ·69 |
| 31 | 1 26 13·25 | N.7 53 34·1 | 0·7710425 | 22 46·2 | 19 15 11·6 | S.1 17 24·5 | 0·69 |

# APRIL, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 26 ·64 | + 2 ·23 | 1 ·12 | N. 5 10 41 ·4 | + 14 ·0 | 15 ·6 | 1 ·4 |
| 20 ·16 | 2 ·23 | 1 ·12 | 5 16 16 ·4 | 14 ·0 | 15 ·6 | 1 ·4 |
| 13 ·73 | 2 ·23 | 1 ·12 | 5 21 51 ·1 | 13 ·9 | 15 ·6 | 1 ·4 |
| 7 ·33 | 2 ·23 | 1 ·12 | 5 27 25 ·4 | 13 ·9 | 15 ·5 | 1 ·4 |
| 0 ·95 | 2 ·23 | 1 ·12 | 5 32 59 ·2 | 13 ·9 | 15 ·5 | 1 ·4 |
| 54 ·61 | 2 ·24 | 1 ·12 | 5 38 32 ·6 | 13 ·9 | 15 ·5 | 1 ·4 |
| 48 ·29 / 41 ·96 | 2 ·24 / 2 ·24 | 1 ·12 / 1 ·12 | 5 44 5 ·4 / 5 49 37 ·8 | 13 ·9 / 13 ·9 | 15 ·5 / 15 ·5 | 1 ·4 / 1 ·4 |
| 35 ·66 | 2 ·24 | 1 ·12 | 5 55 9 ·5 | 13 ·9 | 15 ·5 | 1 ·4 |
| 29 ·36 | 2 ·24 | 1 ·12 | 6 0 40 ·6 | 13 ·9 | 15 ·5 | 1 ·4 |
| 23 ·06 | 2 ·24 | 1 ·12 | 6 6 11 ·1 | 13 ·8 | 15 ·5 | 1 ·4 |
| 16 ·76 | 2 ·24 | 1 ·12 | 6 11 40 ·9 | 13 ·8 | 15 ·5 | 1 ·4 |
| 10 ·45 | 2 ·24 | 1 ·13 | 6 17 10 ·0 | 13 ·7 | 15 ·6 | 1 ·4 |
| 4 ·11 | 2 ·24 | 1 ·13 | 6 22 38 ·3 | 13 ·7 | 15 ·6 | 1 ·4 |
| 57 ·76 | 2 ·24 | 1 ·13 | 6 28 5 ·8 | 13 ·6 | 15 ·6 | 1 ·4 |
| 51 ·39 | 2 23 | 1 ·13 | 6 33 32 ·6 | 13 ·6 | 15 ·6 | 1 ·4 |
| 44 ·99 | 2 ·23 | 1 ·13 | 6 38 58 ·5 | 13 ·6 | 15 ·6 | 1 ·4 |
| 38 ·56 | 2 ·23 | 1 ·13 | 6 44 23 ·5 | 13 ·5 | 15 ·6 | 1 ·4 |
| 32 ·10 | 2 ·23 | 1 ·13 | 6 49 47 ·7 | 13 ·5 | 15 ·6 | 1 ·4 |
| 25 ·60 | 2 ·23 | 1 ·13 | 6 55 10 ·9 | 13 ·4 | 15 ·6 | 1 ·4 |
| 19 ·06 | 2 ·23 | 1 ·13 | 7 0 33 ·2 | 13 ·4 | 15 ·6 | 1 ·4 |
| 12 ·48 | 2 ·23 | 1 ·13 | 7 5 54 ·6 | 13 ·4 | 15 ·6 | 1 ·4 |
| 5 ·85 | 2 ·22 | 1 ·13 | 7 11 15 ·0 | 13 ·3 | 15 ·6 | 1 ·4 |
| 59 ·17 | 2 ·22 | 1 ·13 | 7 16 34 ·3 | 13 ·3 | 15 ·6 | 1 ·4 |
| 52 ·44 | 2 ·22 | 1 ·13 | 7 21 52 ·6 | 13 ·2 | 15 ·6 | 1 ·4 |
| 45 ·64 | 2 ·22 | 1 ·13 | 7 27 9 ·8 | 13 ·2 | 15 ·6 | 1 ·4 |
| 38 ·79 | 2 ·21 | 1 ·13 | 7 32 25 ·9 | 13 ·1 | 15 ·6 | 1 ·4 |
| 31 ·87 | 2 ·21 | 1 ·13 | 7 37 40 ·9 | 13 ·1 | 15 ·6 | 1 ·4 |
| 24 ·87 | 2 ·21 | 1 ·13 | 7 42 54 ·8 | 13 ·0 | 15 ·7 | 1 ·5 |
| 17 ·80 | 2 ·21 | 1 ·13 | 7 48 7 ·4 | 13 ·0 | 15 ·7 | 1 ·5 |
| 10 ·65 | 2 ·20 | 1 ·13 | 7 53 18 ·8 | 13 ·0 | 15 ·7 | 1 ·5 |
| 3 ·42 | + 2 ·20 | 1 ·13 | N. 7 58 29 ·0 | + 12 ·9 | 15 ·7 | 1 ·5 |

# MAY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 1 26 13·25 | N. 7 53 34·1 | 0·7710425 | 22 46·2 | 19 15 11·6 | S. 1 17 24·5 |
| 2 | 1 27 6·12 | 7 58 44·9 | ·7707043 | 22 43·2 | 19 20 41·3 | 1 17 23·1 |
| 3 | 1 27 58·90 | 8 3 54·3 | ·7703519 | 22 40·1 | 19 26 11·0 | 1 17 21·7 |
| 4 | 1 28 51·59 | 8 9 2·5 | ·7699852 | 22 37·1 | 19 31 40·7 | 1 17 20·3 |
| 5 | 1 29 44·17 | 8 14 9·3 | ·7696042 | 22 34·0 | 19 37 10·4 | 1 17 18·9 |
| 6 | 1 30 36·65 | 8 19 14·7 | ·7692091 | 22 30·9 | 19 42 40·1 | 1 17 17·5 |
| 7 | 1 31 29·02 | 8 24 18·7 | ·7687998 | 22 27·9 | 19 48 9·8 | 1 17 16·1 |
| 8 | 1 32 21·27 | 8 29 21·3 | ·7683763 | 22 24·8 | 19 53 39·5 | 1 17 14·6 |
| 9 | 1 33 13·40 | 8 34 22·4 | ·7679387 | 22 21·7 | 19 59 9·2 | 1 17 13·2 |
| 10 | 1 34 5·41 | 8 39 22·0 | ·7674871 | 22 18·6 | 20 4 38·9 | 1 17 11·7 |
| 11 | 1 34 57·28 | 8 44 20·1 | ·7670216 | 22 15·6 | 20 10 8·5 | 1 17 10·3 |
| 12 | 1 35 49·02 | 8 49 16·7 | ·7665421 | 22 12·5 | 20 15 38·2 | 1 17 8·8 |
| 13 | 1 36 40·61 | 8 54 11·6 | ·7660487 | 22 9·4 | 20 21 7·9 | 1 17 7·3 |
| 14 | 1 37 32·06 | 8 59 4·9 | ·7655416 | 22 6·3 | 20 26 37·5 | 1 17 5·8 |
| 15 | 1 38 23·36 | 9 3 56·6 | ·7650207 | 22 3·3 | 20 32 7·2 | 1 17 4·3 |
| 16 | 1 39 14·50 | 9 8 46·6 | ·7644861 | 22 0·2 | 20 37 36·8 | 1 17 2·7 |
| 17 | 1 40 5·49 | 9 13 34·9 | ·7639378 | 21 57·1 | 20 43 6·4 | 1 17 1·2 |
| 18 | 1 40 56·31 | 9 18 21·6 | ·7633760 | 21 54·0 | 20 48 36·1 | 1 16 59·6 |
| 19 | 1 41 46·97 | 9 23 6·5 | ·7628006 | 21 50·9 | 20 54 5·7 | 1 16 58·1 |
| 20 | 1 42 37·46 | 9 27 49·7 | ·7622117 | 21 47·8 | 20 59 35·3 | 1 16 56·5 |
| 21 | 1 43 27·77 | 9 32 31·2 | ·7616094 | 21 44·7 | 21 5 4·9 | 1 16 54·9 |
| 22 | 1 44 17·90 | 9 37 11·0 | ·7609936 | 21 41·6 | 21 10 34·5 | 1 16 53·3 |
| 23 | 1 45 7·85 | 9 41 48·9 | ·7603643 | 21 38·5 | 21 16 4·1 | 1 16 51·7 |
| 24 | 1 45 57·60 | 9 46 24·9 | ·7597217 | 21 35·4 | 21 21 33·7 | 1 16 50·1 |
| 25 | 1 46 47·17 | 9 50 59·1 | ·7590656 | 21 32·3 | 21 27 3·2 | 1 16 48·4 |
| 26 | 1 47 36·54 | 9 55 31·4 | ·7583961 | 21 29·2 | 21 32 32·8 | 1 16 46·8 |
| 27 | 1 48 25·70 | 10 0 1·7 | ·7577133 | 21 26·0 | 21 38 2·3 | 1 16 45·1 |
| 28 | 1 49 14·66 | 10 4 30·1 | ·7570172 | 21 22·9 | 21 43 31·9 | 1 16 43·4 |
| 29 | 1 50 3·40 | 10 8 56·5 | ·7563077 | 21 19·8 | 21 49 1·4 | 1 16 41·7 |
| 30 | 1 50 51·92 | 10 13 21·0 | ·7555850 | 21 16·6 | 21 54 30·9 | 1 16 40·0 |
| 31 | 1 51 40·22 | 10 17 43·4 | ·7548490 | 21 13·5 | 22 0 0·4 | 1 16 38·3 |
| 32 | 1 52 28·29 | N. 10 22 3·8 | 0·7540998 | 21 10·4 | 22 5 29·9 | S. 1 16 36·6 |

# MAY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 27 3 ·42 | + 2 ·20 | 1 ·13 | N. 7 58 29 ·0 | +12 ·9 | 15 ·7 | 1 ·5 |
| 1 27 56 ·09 | 2 ·19 | 1 ·13 | 8 3 37 ·8 | 12 ·8 | 15 ·7 | 1 ·5 |
| 1 28 48 ·67 | 2 ·19 | 1 ·13 | 8 8 45 ·4 | 12 ·8 | 15 ·7 | 1 ·5 |
| 1 29 41 ·15 | 2 ·18 | 1 ·13 | 8 13 51 ·6 | 12 ·7 | 15 ·7 | 1 ·5 |
| 1 30 33 ·52 | 2 ·18 | 1 ·14 | 8 18 56 ·5 | 12 ·7 | 15 ·8 | 1 ·5 |
| 1 31 25 ·78 | 2 ·18 | 1 ·14 | 8 23 59 ·9 | 12 ·6 | 15 ·8 | 1 ·5 |
| 1 32 17 ·93 | 2 ·17 | 1 ·14 | 8 29 2 ·0 | 12 ·6 | 15 ·8 | 1 ·5 |
| 1 33 9 ·96 | 2 ·17 | 1 ·14 | 8 34 2 ·6 | 12 ·5 | 15 ·8 | 1 ·5 |
| 1 34 1 ·86 | 2 ·16 | 1 ·14 | 8 39 1 ·6 | 12 ·4 | 15 ·8 | 1 ·5 |
| 1 34 53 ·63 | 2 ·15 | 1 ·14 | 8 43 59 ·2 | 12 ·4 | 15 ·8 | 1 ·5 |
| 1 35 45 ·27 | 2 ·15 | 1 ·15 | 8 48 55 ·2 | 12 ·3 | 15 ·9 | 1 ·5 |
| 1 36 36 ·76 | 2 ·14 | 1 ·15 | 8 53 49 ·6 | 12 ·2 | 15 ·9 | 1 ·5 |
| 1 37 28 ·11 | 2 ·14 | 1 ·15 | 8 58 42 ·4 | 12 ·1 | 15 ·9 | 1 ·5 |
| 1 38 19 ·31 | 2 ·13 | 1 ·15 | 9 3 33 ·6 | 12 ·1 | 15 ·9 | 1 ·5 |
| 1 39 10 ·36 | 2 ·12 | 1 ·15 | 9 8 23 ·1 | 12 ·0 | 15 ·9 | 1 ·5 |
| 1 40 1 ·25 | 2 ·12 | 1 ·16 | 9 13 11 ·0 | 12 ·0 | 15 ·9 | 1 ·5 |
| 1 40 51 ·98 | 2 ·11 | 1 ·16 | 9 17 57 ·2 | 11 ·9 | 15 ·9 | 1 ·5 |
| 1 41 42 ·54 | 2 ·10 | 1 ·16 | 9 22 41 ·6 | 11 ·8 | 15 ·9 | 1 ·5 |
| 1 42 32 ·94 | 2 ·10 | 1 ·16 | 9 27 24 ·4 | 11 ·7 | 15 ·9 | 1 ·5 |
| 1 43 23 ·16 | 2 ·09 | 1 ·17 | 9 32 5 ·5 | 11 ·7 | 16 ·0 | 1 ·5 |
| 1 44 13 ·20 | 2 ·08 | 1 ·17 | 9 36 44 ·7 | 11 ·6 | 16 ·0 | 1 ·5 |
| 1 45 3 ·05 | 2 ·07 | 1 ·17 | 9 41 22 ·2 | 11 ·5 | 16 ·0 | 1 ·5 |
| 1 45 52 ·72 | 2 ·07 | 1 ·17 | 9 45 57 ·9 | 11 ·4 | 16 ·0 | 1 ·5 |
| 1 46 42 ·20 | 2 ·06 | 1 ·18 | 9 50 31 ·7 | 11 ·4 | 16 ·1 | 1 ·5 |
| 1 47 31 ·48 | 2 ·05 | 1 ·18 | 9 55 3 ·5 | 11 ·3 | 16 ·1 | 1 ·5 |
| 1 48 20 ·56 | 2 ·04 | 1 ·18 | 9 59 33 ·5 | 11 ·2 | 16 ·1 | 1 ·5 |
| 1 49 9 ·43 | 2 ·03 | 1 ·18 | 10 4 1 ·5 | 11 ·1 | 16 ·1 | 1 ·5 |
| 1 49 58 ·09 | 2 ·02 | 1 ·19 | 10 8 27 ·6 | 11 ·0 | 16 ·2 | 1 ·5 |
| 1 50 46 ·53 | 2 ·01 | 1 ·19 | 10 12 51 ·7 | 11 ·0 | 16 ·2 | 1 ·5 |
| 1 51 34 ·75 | 2 ·00 | 1 ·19 | 10 17 13 ·7 | 10 ·9 | 16 ·2 | 1 ·5 |
| 1 52 22 ·74 | 1 ·99 | 1 ·20 | 10 21 33 ·8 | 10 ·8 | 16 ·3 | 1 ·5 |
| 1 53 10 ·49 | + 1 ·98 | 1 ·20 | N. 10 25 51 ·9 | +10 ·7 | 16 ·3 | 1 ·5 |

# JUNE, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 1 52 28·29 | N.10 22 3·8 | 0·7540998 | 21 10·4 | 22 5 29·9 | S.1 16 36·6 | 0·69[illegible] |
| 2 | 1 53 16·11 | 10 26 22·2 | ·7533374 | 21 7·2 | 22 10 59·4 | 1 16 34·8 | ·69[illegible] |
| 3 | 1 54 3·70 | 10 30 38·5 | ·7525620 | 21 4·1 | 22 16 28·9 | 1 16 33·1 | ·69[illegible] |
| 4 | 1 54 51·03 | 10 34 52·6 | ·7517735 | 21 0·9 | 22 21 58·4 | 1 16 31·3 | ·69[illegible] |
| 5 | 1 55 38·11 | 10 39 4·7 | ·7509720 | 20 57·8 | 22 27 27·9 | 1 16 29·6 | ·69[illegible] |
| 6 | 1 56 24·92 | 10 43 14·5 | ·7501577 | 20 54·6 | 22 32 57·3 | 1 16 27·8 | ·69[illegible] |
| 7 | 1 57 11·46 | 10 47 22·1 | ·7493305 | 20 51·5 | 22 38 26·8 | 1 16 26·0 | ·69[illegible] |
| 8 | 1 57 57·73 | 10 51 27·5 | ·7484906 | 20 48·3 | 22 43 56·2 | 1 16 24·2 | ·69[illegible] |
| 9 | 1 58 43·72 | 10 55 30·6 | ·7476380 | 20 45·1 | 22 49 25·6 | 1 16 22·4 | ·69[illegible] |
| 10 | 1 59 29·42 | 10 59 31·5 | ·7467729 | 20 42·0 | 22 54 55·1 | 1 16 20·6 | ·69[illegible] |
| 11 | 2 0 14·83 | 11 3 30·0 | ·7458953 | 20 38·8 | 23 0 24·5 | 1 16 18·7 | ·69[illegible] |
| 12 | 2 0 59·94 | 11 7 26·3 | ·7450053 | 20 35·6 | 23 5 53·9 | 1 16 16·9 | ·69[illegible] |
| 13 | 2 1 44·75 | 11 11 20·3 | ·7441031 | 20 32·4 | 23 11 23·3 | 1 16 15·0 | ·69[illegible] |
| 14 | 2 2 29·25 | 11 15 11·9 | ·7431887 | 20 29·2 | 23 16 52·7 | 1 16 13·1 | ·69[illegible] |
| 15 | 2 3 13·43 | 11 19 1·1 | ·7422621 | 20 26·0 | 23 22 22·0 | 1 16 11·2 | ·69[illegible] |
| 16 | 2 3 57·29 | 11 22 48·0 | ·7413236 | 20 22·8 | 23 27 51·4 | 1 16 9·3 | ·69[illegible] |
| 17 | 2 4 40·83 | 11 26 32·4 | ·7403731 | 20 19·5 | 23 33 20·8 | 1 16 7·4 | ·69[illegible] |
| 18 | 2 5 24·04 | 11 30 14·4 | ·7394108 | 20 16·3 | 23 38 50·1 | 1 16 5·5 | ·69[illegible] |
| 19 | 2 6 6·91 | 11 33 53·9 | ·7384368 | 20 13·1 | 23 44 19·5 | 1 16 3·6 | ·69[illegible] |
| 20 | 2 6 49·44 | 11 37 31·0 | ·7374510 | 20 9·9 | 23 49 48·8 | 1 16 1·6 | ·69[illegible] |
| 21 | 2 7 31·62 | 11 41 5·6 | ·7364536 | 20 6·6 | 23 55 18·1 | 1 15 59·7 | ·69[illegible] |
| 22 | 2 8 13·45 | 11 44 37·7 | ·7354446 | 20 3·4 | 24 0 47·4 | 1 15 57·7 | ·69[illegible] |
| 23 | 2 8 54·92 | 11 48 7·2 | ·7344241 | 20 0·1 | 24 6 16·7 | 1 15 55·7 | ·69[illegible] |
| 24 | 2 9 36·03 | 11 51 34·2 | ·7333922 | 19 56·9 | 24 11 46·0 | 1 15 53·7 | ·69[illegible] |
| 25 | 2 10 16·77 | 11 54 58·6 | ·7323489 | 19 53·6 | 24 17 15·3 | 1 15 51·7 | ·69[illegible] |
| 26 | 2 10 57·12 | 11 58 20·5 | ·7312942 | 19 50·4 | 24 22 44·6 | 1 15 49·7 | ·69[illegible] |
| 27 | 2 11 37·09 | 12 1 39·7 | ·7302284 | 19 47·1 | 24 28 13·8 | 1 15 47·7 | ·69[illegible] |
| 28 | 2 12 16·66 | 12 4 56·2 | ·7291514 | 19 43·8 | 24 33 43·1 | 1 15 45·6 | ·69[illegible] |
| 29 | 2 12 55·83 | 12 8 10·1 | ·7280635 | 19 40·5 | 24 39 12·3 | 1 15 43·6 | ·69[illegible] |
| 30 | 2 13 34·60 | 12 11 21·2 | ·7269646 | 19 37·2 | 24 44 41·6 | 1 15 41·5 | ·69[illegible] |
| 31 | 2 14 12·95 | N.12 14 29·5 | 0·7258549 | 19 33·9 | 24 50 10·8 | S.1 15 39·4 | 0·69[illegible] |

# JUNE, 1845.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| | 1 53 10 ·49 | + 1 ·98 | 1 ·20 | N.10 25 51 ·9 | +10 ·7 | 16 ·3 | 1 ·5 |
| 2 | 1 53 58 ·00 | 1 ·97 | 1 ·20 | 10 30 7 ·9 | 10 ·6 | 16 ·3 | 1 ·5 |
| 3 | 1 54 45 ·26 | 1 ·96 | 1 ·20 | 10 34 21 ·7 | 10 ·5 | 16 ·4 | 1 ·5 |
| 4 | 1 55 32 ·27 | 1 ·95 | 1 ·20 | 10 38 33 ·4 | 10 ·4 | 16 ·4 | 1 ·5 |
| 5 | 1 56 19 ·01 | 1 ·94 | 1 ·20 | 10 42 43 ·0 | 10 ·4 | 16 ·4 | 1 ·5 |
| 6 | 1 57 5 ·49 | 1 ·93 | 1 ·21 | 10 46 50 ·3 | 10 ·3 | 16 ·5 | 1 ·5 |
| 7 | 1 57 51 ·69 | 1 ·92 | 1 ·21 | 10 50 55 ·5 | 10 ·2 | 16 ·5 | 1 ·5 |
| 8 | 1 58 37 ·61 | 1 ·91 | 1 ·21 | 10 54 58 ·3 | 10 ·1 | 16 ·5 | 1 ·5 |
| 9 | 1 59 23 ·25 | 1 ·90 | 1 ·21 | 10 58 59 ·0 | 10 ·0 | 16 ·6 | 1 ·5 |
| 10 | 2 0 8 ·60 | 1 ·88 | 1 ·21 | 11 2 57 ·4 | 9 ·9 | 16 ·6 | 1 ·5 |
| 11 | 2 0 53 ·65 | 1 ·87 | 1 ·21 | 11 6 53 ·4 | 9 ·8 | 16 ·6 | 1 ·5 |
| 12 | 2 1 38 ·40 | 1 ·86 | 1 ·21 | 11 10 47 ·2 | 9 ·7 | 16 ·7 | 1 ·5 |
| 13 | 2 2 22 ·85 | 1 ·84 | 1 ·21 | 11 14 38 ·6 | 9 ·6 | 16 ·7 | 1 ·5 |
| 14 | 2 3 6 ·98 | 1 ·83 | 1 ·21 | 11 18 27 ·7 | 9 ·5 | 16 ·7 | 1 ·6 |
| 15 | 2 3 50 ·80 | 1 ·82 | 1 ·22 | 11 22 14 ·4 | 9 ·4 | 16 ·8 | 1 ·6 |
| 16 | 2 4 34 ·29 | 1 ·81 | 1 ·22 | 11 25 58 ·7 | 9 ·3 | 16 ·8 | 1 ·6 |
| 17 | 2 5 17 ·45 | 1 ·79 | 1 ·22 | 11 29 40 ·6 | 9 ·2 | 16 ·8 | 1 ·6 |
| 18 | 2 6 0 ·28 | 1 ·78 | 1 ·23 | 11 33 20 ·0 | 9 ·1 | 16 ·9 | 1 ·6 |
| 19 | 2 6 42 ·76 | 1 ·76 | 1 ·23 | 11 36 57 ·0 | 9 ·0 | 16 ·9 | 1 ·6 |
| 20 | 2 7 24 ·91 | 1 ·75 | 1 ·24 | 11 40 31 ·5 | 8 ·9 | 17 ·0 | 1 ·6 |
| 21 | 2 8 6 ·70 | 1 ·73 | 1 ·25 | 11 44 3 ·5 | 8 ·8 | 17 ·0 | 1 ·6 |
| 22 | 2 8 48 ·13 | 1 ·72 | 1 ·25 | 11 47 33 ·0 | 8 ·7 | 17 ·1 | 1 ·6 |
| 23 | 2 9 29 ·21 | 1 ·70 | 1 ·26 | 11 50 59 ·9 | 8 ·6 | 17 ·1 | 1 ·6 |
| 24 | 2 10 9 ·91 | 1 ·69 | 1 ·26 | 11 54 24 ·3 | 8 ·5 | 17 ·1 | 1 ·6 |
| 25 | 2 10 50 ·24 | 1 ·67 | 1 ·26 | 11 57 46 ·1 | 8 ·4 | 17 ·2 | 1 ·6 |
| 26 | 2 11 30 ·19 | 1 ·66 | 1 ·27 | 12 1 5 ·3 | 8 ·2 | 17 ·2 | 1 ·6 |
| 27 | 2 12 9 ·74 | 1 ·64 | 1 ·27 | 12 4 21 ·9 | 8 ·1 | 17 ·2 | 1 ·6 |
| 28 | 2 12 48 ·89 | 1 ·62 | 1 ·27 | 12 7 35 ·8 | 8 ·0 | 17 ·2 | 1 ·6 |
| 29 | 2 13 27 ·64 | 1 ·61 | 1 ·27 | 12 10 47 ·0 | 7 ·9 | 17 ·3 | 1 ·6 |
| 30 | 2 14 5 ·98 | 1 ·59 | 1 ·27 | 12 13 55 ·4 | 7 ·8 | 17 ·3 | 1 ·6 |
| 31 | 2 14 43 ·89 | + 1 ·57 | 1 ·28 | N.12 17 1 ·0 | + 7 ·7 | 17 ·4 | 1 ·6 |

# JULY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 2 14 12·95 | N.12 14 29·5 | 0·7258549 | 19 33·9 | 24 50 10·8 | S.1 15 39·4 | 0·695 |
| 2 | 2 14 50·87 | 12 17 35·1 | ·7247345 | 19 30·6 | 24 55 40·0 | 1 15 37·3 | ·695 |
| 3 | 2 15 28·35 | 12 20 37·9 | ·7236036 | 19 27·3 | 25 1 9·1 | 1 15 35·2 | ·695 |
| 4 | 2 16 5·40 | 12 23 37·9 | ·7224623 | 19 24·0 | 25 6 38·3 | 1 15 33·1 | ·695 |
| 5 | 2 16 42·00 | 12 26 35·1 | ·7213108 | 19 20·6 | 25 12 7·5 | 1 15 31·0 | ·695 |
| 6 | 2 17 18·14 | 12 29 29·5 | ·7201493 | 19 17·3 | 25 17 36·6 | 1 15 28·9 | ·695 |
| 7 | 2 17 53·82 | 12 32 21·1 | ·7189779 | 19 14·0 | 25 23 5·8 | 1 15 26·8 | ·695 |
| 8 | 2 18 29·03 | 12 35 9·9 | ·7177968 | 19 10·6 | 25 28 34·9 | 1 15 24·6 | ·695 |
| 9 | 2 19 3·76 | 12 37 55·7 | ·7166062 | 19 7·2 | 25 34 4·0 | 1 15 22·4 | ·695 |
| 10 | 2 19 38·01 | 12 40 38·7 | ·7154062 | 19 3·9 | 25 39 33·1 | 1 15 20·3 | ·695 |
| 11 | 2 20 11·78 | 12 43 18·7 | ·7141970 | 19 0·5 | 25 45 2·2 | 1 15 18·1 | ·695 |
| 12 | 2 20 45·04 | 12 45 55·8 | ·7129789 | 18 57·1 | 25 50 31·3 | 1 15 15·9 | ·695 |
| 13 | 2 21 17·80 | 12 48 29·8 | ·7117520 | 18 53·7 | 25 56 0·4 | 1 15 13·7 | ·695 |
| 14 | 2 21 50·06 | 12 51 0·9 | ·7105165 | 18 50·3 | 26 1 29·4 | 1 15 11·5 | ·695 |
| 15 | 2 22 21·80 | 12 53 28·9 | ·7092725 | 18 46·9 | 26 6 58·5 | 1 15 9·2 | ·695 |
| 16 | 2 22 53·02 | 12 55 53·8 | ·7080202 | 18 43·5 | 26 12 27·5 | 1 15 7·0 | ·695 |
| 17 | 2 23 23·71 | 12 58 15·7 | ·7067598 | 18 40·0 | 26 17 56·5 | 1 15 4·7 | ·695 |
| 18 | 2 23 53·87 | 13 0 34·6 | ·7054914 | 18 36·6 | 26 23 25·5 | 1 15 2·5 | ·695 |
| 19 | 2 24 23·49 | 13 2 50·4 | ·7042153 | 18 33·1 | 26 28 54·5 | 1 15 0·2 | ·695 |
| 20 | 2 24 52·56 | 13 5 3·1 | ·7029316 | 18 29·7 | 26 34 23·5 | 1 14 57·9 | ·695 |
| 21 | 2 25 21·07 | 13 7 12·7 | ·7016405 | 18 26·2 | 26 39 52·4 | 1 14 55·6 | ·695 |
| 22 | 2 25 49·02 | 13 9 19·1 | ·7003422 | 18 22·8 | 26 45 21·4 | 1 14 53·3 | ·695 |
| 23 | 2 26 16·40 | 13 11 22·4 | ·6990368 | 18 19·3 | 26 50 50·3 | 1 14 51·0 | ·695 |
| 24 | 2 26 43·20 | 13 13 22·5 | ·6977246 | 18 15·8 | 26 56 19·2 | 1 14 48·7 | ·695 |
| 25 | 2 27 9·41 | 13 15 19·4 | ·6964057 | 18 12·3 | 27 1 48·1 | 1 14 46·3 | ·695 |
| 26 | 2 27 35·03 | 13 17 13·1 | ·6950804 | 18 8·8 | 27 7 17·0 | 1 14 44·0 | ·695 |
| 27 | 2 28 0·05 | 13 19 3·6 | ·6937490 | 18 5·2 | 27 12 45·9 | 1 14 41·6 | ·695 |
| 28 | 2 28 24·45 | 13 20 50·8 | ·6924117 | 18 1·7 | 27 18 14·7 | 1 14 39·2 | ·695 |
| 29 | 2 28 48·23 | 13 22 34·6 | ·6910687 | 17 58·1 | 27 23 43·5 | 1 14 36·8 | ·695 |
| 30 | 2 29 11·39 | 13 24 15·2 | ·6897203 | 17 54·6 | 27 29 12·4 | 1 14 34·4 | ·695 |
| 31 | 2 29 33·91 | 13 25 52·4 | ·6883668 | 17 51·0 | 27 34 41·2 | 1 14 32·0 | ·695 |
| 32 | 2 29 55·79 | N.13 27 26·2 | 0·6870085 | 17 47·5 | 27 40 10·0 | S.1 14 29·6 | 0·695 |

# JULY, 1845.

At Transit over the Meridian of Greenwich.

| Day of the Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 2 14 43 ·89 | + 1 ·57 | 1 ·28 | N.12 17 1 ·0 | + 7 ·7 | 17 ·4 | 1 ·6 |
| 2 | 2 15 21 ·37 | 1 ·55 | 1 ·28 | 12 20 3 ·9 | 7 ·6 | 17 ·4 | 1 ·6 |
| 3 | 2 15 58 ·42 | 1 ·53 | 1 ·29 | 12 23 4 ·0 | 7 ·4 | 17 ·5 | 1 ·6 |
| 4 | 2 16 35 ·02 | 1 ·52 | 1 ·29 | 12 26 1 ·3 | 7 ·3 | 17 ·5 | 1 ·6 |
| 5 | 2 17 11 ·17 | 1 ·50 | 1 ·30 | 12 28 55 ·9 | 7 ·2 | 17 ·6 | 1 ·6 |
| 6 | 2 17 46 ·86 | 1 ·48 | 1 ·30 | 12 31 47 ·7 | 7 ·1 | 17 ·6 | 1 ·6 |
| 7 | 2 18 22 ·08 | 1 ·46 | 1 ·30 | 12 34 36 ·6 | 7 ·0 | 17 ·7 | 1 ·6 |
| 8 | 2 18 56 ·83 | 1 ·44 | 1 ·30 | 12 37 22 ·6 | 6 ·9 | 17 ·7 | 1 ·6 |
| 9 | 2 19 31 ·10 | 1 ·42 | 1 ·31 | 12 40 5 ·8 | 6 ·7 | 17 ·8 | 1 ·7 |
| 10 | 2 20 4 ·88 | 1 ·40 | 1 ·31 | 12 42 46 ·1 | 6 ·6 | 17 ·8 | 1 ·7 |
| 11 | 2 20 38 ·16 | 1 ·38 | 1 ·31 | 12 45 23 ·4 | 6 ·5 | 17 ·9 | 1 ·7 |
| 12 | 2 21 10 ·95 | 1 ·36 | 1 ·31 | 12 47 57 ·7 | 6 ·4 | 17 ·9 | 1 ·7 |
| 13 | 2 21 43 ·24 | 1 ·33 | 1 ·32 | 12 50 29 ·0 | 6 ·2 | 18 ·0 | 1 ·7 |
| 14 | 2 22 15 ·02 | 1 ·31 | 1 ·32 | 12 52 57 ·3 | 6 ·1 | 18 ·0 | 1 ·7 |
| 15 | 2 22 46 ·27 | 1 ·29 | 1 ·33 | 12 55 22 ·6 | 6 ·0 | 18 ·1 | 1 ·7 |
| 16 | 2 23 17 ·01 | 1 ·27 | 1 ·33 | 12 57 44 ·8 | 5 ·9 | 18 ·1 | 1 ·7 |
| 17 | 2 23 47 ·21 | 1 ·25 | 1 ·34 | 13 0 4 ·0 | 5 ·7 | 18 ·2 | 1 ·7 |
| 18 | 2 24 16 ·88 | 1 ·23 | 1 ·34 | 13 2 20 ·2 | 5 ·6 | 18 ·3 | 1 ·7 |
| 19 | 2 24 46 ·01 | 1 ·20 | 1 ·34 | 13 4 33 ·2 | 5 ·5 | 18 ·3 | 1 ·7 |
| 20 | 2 25 14 ·58 | 1 ·18 | 1 ·35 | 13 6 43 ·2 | 5 ·4 | 18 ·4 | 1 ·7 |
| 21 | 2 25 42 ·60 | 1 ·16 | 1 ·36 | 13 8 50 ·1 | 5 ·2 | 18 ·5 | 1 ·7 |
| 22 | 2 26 10 ·04 | 1 ·13 | 1 ·37 | 13 10 53 ·8 | 5 ·1 | 18 ·5 | 1 ·7 |
| 23 | 2 26 36 ·91 | 1 ·11 | 1 ·37 | 13 12 54 ·4 | 5 ·0 | 18 ·5 | 1 ·7 |
| 24 | 2 27 3 ·20 | 1 ·08 | 1 ·37 | 13 14 51 ·8 | 4 ·8 | 18 ·5 | 1 ·7 |
| 25 | 2 27 28 ·90 | 1 ·06 | 1 ·38 | 13 16 46 ·0 | 4 ·7 | 18 ·6 | 1 ·7 |
| 26 | 2 27 54 ·00 | 1 ·03 | 1 ·38 | 13 18 37 ·0 | 4 ·6 | 18 ·7 | 1 ·7 |
| 27 | 2 28 18 ·49 | 1 ·01 | 1 ·38 | 13 20 24 ·7 | 4 ·4 | 18 ·7 | 1 ·7 |
| 28 | 2 28 42 ·37 | 0 ·98 | 1 ·38 | 13 22 9 ·1 | 4 ·3 | 18 ·8 | 1 ·7 |
| 29 | 2 29 5 ·63 | 0 ·96 | 1 ·39 | 13 23 50 ·3 | 4 ·1 | 18 ·9 | 1 ·8 |
| 30 | 2 29 28 ·26 | 0 ·93 | 1 ·39 | 13 25 28 ·1 | 4 ·0 | 18 ·9 | 1 ·8 |
| 31 | 2 29 50 ·25 | 0 ·90 | 1 ·39 | 13 27 2 ·5 | 3 ·9 | 19 ·0 | 1 ·8 |
| 32 | 2 30 11 ·59 | + 0 ·88 | 1 ·39 | N.13 28 33 ·6 | + 3 ·7 | 19 ·0 | 1 ·8 |

# AUGUST, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 2 29 55·79 | N.13 27 26·2 | 0·6870085 | 17 47·5 | 27 40 10·0 | S.1 14 29·6 | 0·6 |
| 2 | 2 30 17·01 | 13 28 56·7 | ·6856458 | 17 43·9 | 27 45 38·8 | 1 14 27·1 | ·6 |
| 3 | 2 30 37·58 | 13 30 23·7 | ·6842789 | 17 40·3 | 27 51 7·5 | 1 14 24·7 | ·6 |
| 4 | 2 30 57·49 | 13 31 47·4 | ·6829082 | 17 36·7 | 27 56 36·3 | 1 14 22·2 | ·6 |
| 5 | 2 31 16·72 | 13 33 7·6 | ·6815340 | 17 33·1 | 28 2 5·0 | 1 14 19·8 | ·6 |
| 6 | 2 31 35·27 | 13 34 24·4 | ·6801568 | 17 29·6 | 28 7 33·7 | 1 14 17·3 | ·6 |
| 7 | 2 31 53·14 | 13 35 37·8 | ·6787767 | 17 26·0 | 28 13 2·4 | 1 14 14·8 | ·6 |
| 8 | 2 32 10·32 | 13 36 47·7 | ·6773942 | 17 22·3 | 28 18 31·1 | 1 14 12·3 | ·6 |
| 9 | 2 32 26·81 | 13 37 54·1 | ·6760096 | 17 18·6 | 28 23 59·8 | 1 14 9·8 | ·6 |
| 10 | 2 32 42·59 | 13 38 57·1 | ·6746233 | 17 14·9 | 28 29 28·4 | 1 14 7·3 | ·6 |
| 11 | 2 32 57·68 | 13 39 56·5 | ·6732356 | 17 11·1 | 28 34 57·1 | 1 14 4·7 | ·6 |
| 12 | 2 33 12·06 | 13 40 52·4 | ·6718469 | 17 7·4 | 28 40 25·7 | 1 14 2·2 | ·6 |
| 13 | 2 33 25·72 | 13 41 44·8 | ·6704574 | 17 3·7 | 28 45 54·3 | 1 13 59·6 | ·6 |
| 14 | 2 33 38·66 | 13 42 33·7 | ·6690677 | 16 59·9 | 28 51 22·9 | 1 13 57·1 | ·6 |
| 15 | 2 33 50·87 | 13 43 19·1 | ·6676780 | 16 56·2 | 28 56 51·5 | 1 13 54·5 | ·6 |
| 16 | 2 34 2·36 | 13 44 0·8 | ·6662887 | 16 52·4 | 29 2 20·1 | 1 13 51·9 | ·6 |
| 17 | 2 34 13·11 | 13 44 39·0 | ·6649003 | 16 48·7 | 29 7 48·7 | 1 13 49·3 | ·6 |
| 18 | 2 34 23·12 | 13 45 13·6 | ·6635131 | 16 44·9 | 29 13 17·2 | 1 13 46·7 | ·6 |
| 19 | 2 34 32·39 | 13 45 44·6 | ·6621275 | 16 41·1 | 29 18 45·7 | 1 13 44·1 | ·6 |
| 20 | 2 34 40·90 | 13 46 12·0 | ·6607438 | 16 37·3 | 29 24 14·2 | 1 13 41·4 | ·6 |
| 21 | 2 34 48·66 | 13 46 35·8 | ·6593625 | 16 33·5 | 29 29 42·7 | 1 13 38·8 | ·6 |
| 22 | 2 34 55·66 | 13 46 55·9 | ·6579840 | 16 29·7 | 29 35 11·1 | 1 13 36·1 | ·6 |
| 23 | 2 35 1·90 | 13 47 12·4 | ·6566088 | 16 25·8 | 29 40 39·5 | 1 13 33·5 | ·6 |
| 24 | 2 35 7·37 | 13 47 25·3 | ·6552371 | 16 22·0 | 29 46 8·0 | 1 13 30·8 | ·6 |
| 25 | 2 35 12·06 | 13 47 34·5 | ·6538695 | 16 18·1 | 29 51 36·4 | 1 13 28·1 | ·6 |
| 26 | 2 35 15·98 | 13 47 40·0 | ·6525066 | 16 14·3 | 29 57 4·8 | 1 13 25·4 | ·6 |
| 27 | 2 35 19·12 | 13 47 41·9 | ·6511488 | 16 10·4 | 30 2 33·1 | 1 13 22·7 | ·6 |
| 28 | 2 35 21·47 | 13 47 40·2 | ·6497966 | 16 6·5 | 30 8 1·5 | 1 13 20·0 | ·6 |
| 29 | 2 35 23·03 | 13 47 34·7 | ·6484505 | 16 2·6 | 30 13 29·8 | 1 13 17·2 | ·6 |
| 30 | 2 35 23·81 | 13 47 25·6 | ·6471111 | 15 58·6 | 30 18 58·1 | 1 13 14·5 | ·6 |
| 31 | 2 35 23·79 | 13 47 12·8 | ·6457790 | 15 54·7 | 30 24 26·4 | 1 13 11·8 | ·6 |
| 32 | 2 35 22·98 | N.13 46 56·3 | 0·6444547 | 15 50·7 | 30 29 54·7 | S.1 13 9·0 | 0·6 |

# AUGUST, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 30 11 ·59 | + 0 ·88 | 1 ·39 | N.13 28 33 ·6 | + 3 ·7 | 19 ·0 | 1 ·8 |
| 2 30 32 ·28 | 0 ·85 | 1 ·40 | 13 30 1 ·3 | 3 ·6 | 19 ·1 | 1 ·8 |
| 2 30 52 ·31 | 0 ·82 | 1 ·41 | 13 31 25 ·6 | 3 ·4 | 19 ·2 | 1 ·8 |
| 2 31 11 ·67 | 0 ·79 | 1 ·41 | 13 32 46 ·5 | 3 ·3 | 19 ·2 | 1 ·8 |
| 2 31 30 ·36 | 0 ·76 | 1 ·42 | 13 34 4 ·1 | 3 ·2 | 19 ·3 | 1 ·8 |
| 2 31 48 ·36 | 0 ·74 | 1 ·43 | 13 35 18 ·2 | 3 ·0 | 19 ·4 | 1 ·8 |
| 2 32 5 ·69 | 0 ·71 | 1 ·43 | 13 36 28 ·9 | 2 ·9 | 19 ·4 | 1 ·8 |
| 2 32 22 ·32 | 0 ·68 | 1 ·44 | 13 37 36 ·1 | 2 ·7 | 19 ·5 | 1 ·8 |
| 2 32 38 ·26 | 0 ·65 | 1 ·44 | 13 38 39 ·9 | 2 ·6 | 19 ·6 | 1 ·8 |
| 2 32 53 ·50 | 0 ·62 | 1 ·44 | 13 39 40 ·1 | 2 ·4 | 19 ·6 | 1 ·8 |
| 2 33 8 ·04 | 0 ·59 | 1 ·45 | 13 40 36 ·9 | 2 ·3 | 19 ·7 | 1 ·8 |
| 2 33 21 ·87 | 0 ·56 | 1 ·45 | 13 41 30 ·2 | 2 ·1 | 19 ·8 | 1 ·8 |
| 2 33 34 ·99 | 0 ·53 | 1 ·45 | 13 42 20 ·0 | 2 ·0 | 19 ·8 | 1 ·8 |
| 2 33 47 ·38 | 0 ·50 | 1 ·46 | 13 43 6 ·2 | 1 ·9 | 19 ·8 | 1 ·8 |
| 2 33 59 ·05 | 0 ·47 | 1 ·47 | 13 43 48 ·9 | 1 ·8 | 19 ·9 | 1 ·8 |
| 2 34 9 ·99 | 0 ·44 | 1 ·47 | 13 44 28 ·0 | 1 ·6 | 20 ·0 | 1 ·9 |
| 2 34 20 ·20 | 0 ·41 | 1 ·48 | 13 45 3 ·6 | 1 ·4 | 20 ·0 | 1 ·9 |
| 2 34 29 ·67 | 0 ·38 | 1 ·48 | 13 45 35 ·6 | 1 ·3 | 20 ·1 | 1 ·9 |
| 2 34 38 ·39 | 0 ·35 | 1 ·49 | 13 46 4 ·0 | 1 ·1 | 20 ·2 | 1 ·9 |
| 2 34 46 ·36 | 0 ·32 | 1 ·49 | 13 46 28 ·8 | 1 ·0 | 20 ·2 | 1 ·9 |
| 2 34 53 ·57 | 0 ·28 | 1 ·50 | 13 46 50 ·0 | 0 ·8 | 20 ·3 | 1 ·9 |
| 2 35 0 ·03 | 0 ·25 | 1 ·50 | 13 47 7 ·6 | 0 ·7 | 20 ·4 | 1 ·9 |
| 2 35 5 ·73 | 0 ·22 | 1 ·51 | 13 47 21 ·6 | 0 ·5 | 20 ·4 | 1 ·9 |
| 2 35 10 ·66 | 0 ·19 | 1 ·51 | 13 47 31 ·9 | 0 ·4 | 20 ·5 | 1 ·9 |
| 2 35 14 ·81 | 0 ·16 | 1 ·51 | 13 47 38 ·6 | 0 ·2 | 20 ·6 | 1 ·9 |
| 2 35 18 ·19 | 0 ·12 | 1 ·51 | 13 47 41 ·7 | + 0 ·1 | 20 ·6 | 1 ·9 |
| 2 35 20 ·79 | 0 ·09 | 1 ·52 | 13 47 41 ·1 | — 0 ·1 | 20 ·7 | 1 ·9 |
| 2 35 22 ·60 | 0 ·06 | 1 ·53 | 13 47 36 ·9 | 0 ·3 | 20 ·8 | 1 ·9 |
| 2 35 23 ·64 | + 0 ·03 | 1 ·53 | 13 47 29 ·0 | 0 ·4 | 20 ·8 | 1 ·9 |
| 2 35 23 ·89 | — 0 ·01 | 1 ·54 | 13 47 17 ·5 | 0 ·6 | 20 ·9 | 1 ·9 |
| 2 35 23 ·35 | 0 ·04 | 1 ·55 | 13 47 2 ·3 | 0 ·7 | 21 ·0 | 1 ·9 |
| 2 35 22 ·02 | — 0 ·07 | 1 ·55 | N.13 46 43 ·4 | — 0 ·9 | 21 ·0 | 1 ·9 |

# SEPTEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 2 35 22·98 | N.13 46 56·3 | 0·6444547 | 15 50·7 | 30 29 54·7 | S.1 13 9·0 | 0·69 |
| 2 | 2 35 21 38 | 13 46 36·1 | ·6431387 | 15 46·8 | 30 35 23·0 | 1 13 6·2 | ·69 |
| 3 | 2 35 18·99 | 13 46 12·3 | ·6418317 | 15 42·8 | 30 40 51·3 | 1 13 3·4 | ·69 |
| 4 | 2 35 15·81 | 13 45 44·8 | ·6405341 | 15 38·8 | 30 46 19·5 | 1 13 0·6 | ·69 |
| 5 | 2 35 11·83 | 13 45 13·6 | ·6392467 | 15 34·8 | 30 51 47·8 | 1 12 57·8 | ·69 |
| 6 | 2 35 7·07 | 13 44 38·8 | ·6379700 | 15 30·8 | 30 57 16·0 | 1 12 55·0 | ·69 |
| 7 | 2 35 1·52 | 13 44 0·3 | ·6367044 | 15 26·7 | 31 2 44·2 | 1 12 52·2 | ·69 |
| 8 | 2 34 55·19 | 13 43 18·2 | ·6354505 | 15 22·7 | 31 8 12·4 | 1 12 49·3 | ·69 |
| 9 | 2 34 48·08 | 13 42 32·5 | ·6342090 | 15 18·6 | 31 13 40·6 | 1 12 46·5 | ·69 |
| 10 | 2 34 40·19 | 13 41 43·3 | ·6329802 | 15 14·6 | 31 19 8·7 | 1 12 43·6 | ·69 |
| 11 | 2 34 31·54 | 13 40 50·5 | ·6317648 | 15 10·5 | 31 24 36·9 | 1 12 40·7 | ·69 |
| 12 | 2 34 22·11 | 13 39 54·2 | ·6305634 | 15 6·4 | 31 30 5·0 | 1 12 37·9 | ·69 |
| 13 | 2 34 11·93 | 13 38 54·4 | ·6293765 | 15 2·3 | 31 35 33·1 | 1 12 35·0 | ·69 |
| 14 | 2 34 0·99 | 13 37 51·1 | ·6282045 | 14 58·2 | 31 41 1·2 | 1 12 32·1 | ·69 |
| 15 | 2 33 49·29 | 13 36 44·4 | ·6270482 | 14 54·0 | 31 46 29·2 | 1 12 29·1 | ·69 |
| 16 | 2 33 36·85 | 13 35 34·2 | ·6259080 | 14 49·9 | 31 51 57·3 | 1 12 26·2 | ·69 |
| 17 | 2 33 23·67 | 13 34 20·6 | ·6247845 | 14 45·7 | 31 57 25·3 | 1 12 23·3 | ·69 |
| 18 | 2 33 9·75 | 13 33 3·6 | ·6236782 | 14 41·5 | 32 2 53·3 | 1 12 20·3 | ·69 |
| 19 | 2 32 55·09 | 13 31 43·2 | ·6225898 | 14 37·4 | 32 8 21·3 | 1 12 17·3 | ·69 |
| 20 | 2 32 39·72 | 13 30 19·6 | ·6215199 | 14 33·2 | 32 13 49·3 | 1 12 14·4 | ·69 |
| 21 | 2 32 23·63 | 13 28 52·6 | ·6204690 | 14 29·0 | 32 19 17·3 | 1 12 11·4 | ·69 |
| 22 | 2 32 6·84 | 13 27 22·4 | ·6194377 | 14 24·7 | 32 24 45·2 | 1 12 8·4 | ·69 |
| 23 | 2 31 49·35 | 13 25 49·0 | ·6184265 | 14 20·5 | 32 30 13·1 | 1 12 5·4 | ·69 |
| 24 | 2 31 31·17 | 13 24 12·4 | ·6174362 | 14 16·3 | 32 35 41·0 | 1 12 2·4 | ·69 |
| 25 | 2 31 12·30 | 13 22 32·7 | ·6164673 | 14 12·0 | 32 41 8·9 | 1 11 59·3 | ·69 |
| 26 | 2 30 52·77 | 13 20 49·9 | ·6155205 | 14 7·8 | 32 46 36·8 | 1 11 56·3 | ·69 |
| 27 | 2 30 32·59 | 13 19 4·1 | ·6145963 | 14 3·5 | 32 52 4·6 | 1 11 53·3 | ·69 |
| 28 | 2 30 11·76 | 13 17 15·3 | ·6136954 | 13 59·2 | 32 57 32·5 | 1 11 50·2 | ·69 |
| 29 | 2 29 50·29 | 13 15 23·6 | ·6128183 | 13 54·9 | 33 3 0·3 | 1 11 47·1 | ·69 |
| 30 | 2 29 28·20 | 13 13 29·0 | ·6119657 | 13 50·6 | 33 8 28·1 | 1 11 44·0 | ·69 |
| 31 | 2 29 5·51 | N.13 11 31·7 | 0·6111381 | 13 46·3 | 33 13 55·9 | S.1 11 41·0 | 0·69 |

# SEPTEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *rent* ght sion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 22 ·02 | — 0 ·07 | 1 ·55 | N. 13 46 43 ·4 | — 0 ·9 | 21 ·0 | 1 ·9 |
| 19 ·91 | 0 ·10 | 1 ·55 | 13 46 20 ·9 | 1 ·0 | 21 ·0 | 2 ·0 |
| 17 ·00 | 0 ·14 | 1 ·56 | 13 45 54 ·7 | 1 ·2 | 21 ·1 | 2 ·0 |
| 13 ·31 | 0 ·17 | 1 ·56 | 13 45 24 ·9 | 1 ·3 | 21 ·2 | 2 ·0 |
| 8 ·83 | 0 ·20 | 1 ·56 | 13 44 51 ·5 | 1 ·5 | 21 ·2 | 2 ·0 |
| 3 ·57 | 0 ·24 | 1 ·57 | 13 44 14 ·4 | 1 ·6 | 21 ·3 | 2 ·0 |
| 57 ·54 | 0 ·27 | 1 ·57 | 13 43 33 ·7 | 1 ·8 | 21 ·3 | 2 ·0 |
| 50 ·72 | 0 ·30 | 1 ·58 | 13 42 49 ·5 | 1 ·9 | 21 ·4 | 2 ·0 |
| 43 ·13 | 0 ·33 | 1 ·59 | 13 42 1 ·6 | 2 ·1 | 21 ·5 | 2 ·0 |
| 34 ·78 | 0 ·36 | 1 ·59 | 13 41 10 ·2 | 2 ·2 | 21 ·6 | 2 ·0 |
| 25 ·67 | 0 ·40 | 1 ·59 | 13 40 15 ·4 | 2 ·4 | 21 ·6 | 2 ·0 |
| 15 ·79 | 0 ·43 | 1 ·60 | 13 39 17 ·0 | 2 ·5 | 21 ·7 | 2 ·0 |
| 5 ·15 | 0 ·46 | 1 ·60 | 13 38 15 ·2 | 2 ·6 | 21 ·7 | 2 ·0 |
| 53 ·77 | 0 ·49 | 1 ·60 | 13 37 9 ·9 | 2 ·8 | 21 ·8 | 2 ·0 |
| 41 ·65 | 0 ·52 | 1 ·61 | 13 36 1 ·2 | 2 ·9 | 21 ·9 | 2 ·0 |
| 28 ·79 | 0 ·55 | 1 ·61 | 13 34 49 ·1 | 3 ·1 | 21 ·9 | 2 ·0 |
| 15 ·19 | 0 ·58 | 1 ·62 | 13 33 33 ·6 | 3 ·2 | 22 ·0 | 2 ·0 |
| 0 ·87 | 0 ·61 | 1 ·63 | 13 32 14 ·8 | 3 ·4 | 22 ·1 | 2 ·0 |
| 45 ·82 | 0 ·64 | 1 ·63 | 13 30 52 ·7 | 3 ·5 | 22 ·1 | 2 ·0 |
| 30 ·05 | 0 ·67 | 1 ·63 | 13 29 27 ·2 | 3 ·6 | 22 ·2 | 2 ·1 |
| 13 ·59 | 0 ·70 | 1 ·63 | 13 27 58 ·6 | 3 ·8 | 22 ·2 | 2 ·1 |
| 56 ·43 | 0 ·73 | 1 ·63 | 13 26 26 ·7 | 3 ·9 | 22 ·3 | 2 ·1 |
| 38 ·57 | 0 ·76 | 1 ·63 | 13 24 51 ·7 | 4 ·0 | 22 ·3 | 2 ·1 |
| 20 ·04 | 0 ·79 | 1 ·64 | 13 23 13 ·5 | 4 ·2 | 22 ·3 | 2 ·1 |
| 0 ·84 | 0 ·81 | 1 ·64 | 13 21 32 ·2 | 4 ·3 | 22 ·3 | 2 ·1 |
| 40 ·98 | 0 ·84 | 1 ·65 | 13 19 48 ·0 | 4 ·4 | 22 ·4 | 2 ·1 |
| 20 ·47 | 0 ·87 | 1 ·65 | 13 18 0 ·7 | 4 ·5 | 22 ·4 | 2 ·1 |
| 59 ·33 | 0 ·89 | 1 ·65 | 13 16 10 ·5 | 4 ·7 | 22 ·5 | 2 ·1 |
| 37 ·56 | 0 ·92 | 1 ·65 | 13 14 17 ·5 | 4 ·8 | 22 ·6 | 2 ·1 |
| 15 ·19 | 0 ·94 | 1 ·66 | 13 12 21 ·7 | 4 ·9 | 22 ·6 | 2 ·1 |
| 52 ·23 | — 0 ·97 | 1 ·66 | N. 13 10 23 ·1 | — 5 ·0 | 22 ·6 | 2 ·1 |

# OCTOBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 2 29 5·51 | N.13 11 31·7 | 0·6111381 | 13 46·3 | 33 13 55·9 | S.1 11 41·0 | 0·6962 |
| 2 | 2 28 42·24 | 13 9 31·7 | ·6103361 | 13 42·0 | 33 19 23·6 | 1 11 37·8 | ·6962 |
| 3 | 2 28 18·40 | 13 7 29·1 | ·6095602 | 13 37·7 | 33 24 51·4 | 1 11 34·7 | ·6962 |
| 4 | 2 27 54·00 | 13 5 23·9 | ·6088109 | 13 33·3 | 33 30 19·1 | 1 11 31·6 | ·6962 |
| 5 | 2 27 29·07 | 13 3 16·3 | ·6080889 | 13 29·0 | 33 35 46·8 | 1 11 28·5 | ·6962 |
| 6 | 2 27 3·63 | 13 1 6·3 | ·6073945 | 13 24·6 | 33 41 14·5 | 1 11 25·3 | ·6962 |
| 7 | 2 26 37·70 | 12 58 54·1 | ·6067282 | 13 20·2 | 33 46 42·2 | 1 11 22·1 | ·6962 |
| 8 | 2 26 11·28 | 12 56 39·6 | ·6060903 | 13 15·9 | 33 52 9·8 | 1 11 19·0 | ·6962 |
| 9 | 2 25 44·40 | 12 54 23·0 | ·6054814 | 13 11·5 | 33 57 37·5 | 1 11 15·8 | ·6963 |
| 10 | 2 25 17·09 | 12 52 4·4 | ·6049018 | 13 7·1 | 34 3 5·1 | 1 11 12·6 | ·6963 |
| 11 | 2 24 49·36 | 12 49 43·9 | ·6043519 | 13 2·7 | 34 8 32·7 | 1 11 9·4 | ·6963 |
| 12 | 2 24 21·22 | 12 47 21·5 | ·6038320 | 12 58·3 | 34 14 0·3 | 1 11 6·2 | ·6963 |
| 13 | 2 23 52·71 | 12 44 57·3 | ·6033425 | 12 53·9 | 34 19 27·8 | 1 11 3·0 | ·6963 |
| 14 | 2 23 23·84 | 12 42 31·5 | ·6028839 | 12 49·5 | 34 24 55·4 | 1 10 59·7 | ·6963 |
| 15 | 2 22 54·63 | 12 40 4·2 | ·6024563 | 12 45·0 | 34 30 22·9 | 1 10 56·5 | ·6963 |
| 16 | 2 22 25·10 | 12 37 35·4 | ·6020601 | 12 40·6 | 34 35 50·4 | 1 10 53·3 | ·6963 |
| 17 | 2 21 55·28 | 12 35 5·3 | ·6016956 | 12 36·2 | 34 41 17·9 | 1 10 50·0 | ·6964 |
| 18 | 2 21 25·18 | 12 32 33·9 | ·6013630 | 12 31·8 | 34 46 45·4 | 1 10 46·8 | ·6964 |
| 19 | 2 20 54·82 | 12 30 1·4 | ·6010628 | 12 27·3 | 34 52 12·8 | 1 10 43·5 | ·6964 |
| 20 | 2 20 24·24 | 12 27 27·9 | ·6007951 | 12 22·9 | 34 57 40·3 | 1 10 40·2 | ·6964 |
| 21 | 2 19 53·45 | 12 24 53·4 | ·6005602 | 12 18·4 | 35 3 7·7 | 1 10 36·9 | ·6964 |
| 22 | 2 19 22·47 | 12 22 18·2 | ·6003584 | 12 14·0 | 35 8 35·1 | 1 10 33·5 | ·6964 |
| 23 | 2 18 51·33 | 12 19 42·3 | ·6001898 | 12 9·5 | 35 14 2·5 | 1 10 30·2 | ·6964 |
| 24 | 2 18 20·04 | 12 17 5·8 | ·6000546 | 12 5·1 | 35 19 29·9 | 1 10 26·9 | ·6964 |
| 25 | 2 17 48·64 | 12 14 28·8 | ·5999530 | 12 0·6 | 35 24 57·2 | 1 10 23·5 | ·6965 |
| 26 | 2 17 17·15 | 12 11 51·5 | ·5998852 | 11 56·2 | 35 30 24·6 | 1 10 20·2 | ·6965 |
| 27 | 2 16 45·60 | 12 9 14·1 | ·5998512 | 11 51·7 | 35 35 51·9 | 1 10 16·8 | ·6965 |
| 28 | 2 16 14·00 | 12 6 36·6 | ·5998512 | 11 47·3 | 35 41 19·2 | 1 10 13·4 | ·6965 |
| 29 | 2 15 42·39 | 12 3 59·2 | ·5998853 | 11 42·8 | 35 46 46·5 | 1 10 10·1 | ·6965 |
| 30 | 2 15 10·79 | 12 1 21·9 | ·5999534 | 11 38·4 | 35 52 13·7 | 1 10 6·7 | ·6965 |
| 31 | 2 14 39·22 | 11 58 45·0 | ·6000556 | 11 33·9 | 35 57 41·0 | 1 10 3·2 | ·6965 |
| 32 | 2 14 7·72 | N.11 56 8·6 | 0·6001918 | 11 29·5 | 36 3 8·2 | S.1 9 59·8 | 0·6965 |

# OCTOBER, 1845.

At Transit over the Meridian of Greenwich.

| rent ht sion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 ·23 | — 0 ·97 | 1 ·66 | N.13 10 23 ·1 | — 5 ·0 | 22 ·6 | 2 ·1 |
| 8 ·70 | 0 ·99 | 1 ·67 | 13 8 22 ·0 | 5 ·1 | 22 ·7 | 2 ·1 |
| 4 ·61 | 1 ·01 | 1 ·67 | 13 6 18 ·3 | 5 ·2 | 22 ·7 | 2 ·1 |
| 9 ·99 | 1 ·04 | 1 ·68 | 13 4 12 ·1 | 5 ·3 | 22 ·8 | 2 ·1 |
| 4 ·84 | 1 ·06 | 1 ·68 | 13 2 3 ·6 | 5 ·4 | 22 ·8 | 2 ·1 |
| 9 ·20 | 1 ·08 | 1 ·68 | 12 59 52 ·7 | 5 ·5 | 22 ·8 | 2 ·1 |
| 3 ·07 | 1 ·10 | 1 ·68 | 12 57 39 ·6 | 5 ·6 | 22 ·9 | 2 ·1 |
| 6 ·48 | 1 ·12 | 1 ·68 | 12 55 24 ·4 | 5 ·7 | 22 ·9 | 2 ·1 |
| 9 ·44 | 1 ·14 | 1 ·68 | 12 53 7 ·1 | 5 ·8 | 22 ·9 | 2 ·1 |
| 1 ·98 | 1 ·15 | 1 ·69 | 12 50 47 ·8 | 5 ·8 | 23 ·0 | 2 ·1 |
| 4 ·12 | 1 ·17 | 1 ·69 | 12 48 26 ·7 | 5 ·9 | 23 ·0 | 2 ·1 |
| 5 ·86 | 1 ·19 | 1 ·69 | 12 46 3 ·8 | 6 ·0 | 23 ·0 | 2 ·1 |
| 7 ·24 | 1 ·20 | 1 ·70 | 12 43 39 ·2 | 6 ·1 | 23 ·1 | 2 ·1 |
| 8 ·27 | 1 ·21 | 1 ·70 | 12 41 13 ·0 | 6 ·1 | 23 ·1 | 2 ·1 |
| 8 ·98 | 1 ·23 | 1 ·70 | 12 38 45 ·3 | 6 ·2 | 23 ·1 | 2 ·1 |
| 9 ·38 | 1 ·24 | 1 ·70 | 12 36 16 ·3 | 6 ·2 | 23 ·1 | 2 ·1 |
| 9 ·50 | 1 ·25 | 1 ·71 | 12 33 45 ·9 | 6 ·3 | 23 ·2 | 2 ·1 |
| 9 ·35 | 1 ·26 | 1 ·71 | 12 31 14 ·4 | 6 ·3 | 23 ·2 | 2 ·1 |
| 8 ·96 | 1 ·27 | 1 ·71 | 12 28 41 ·8 | 6 ·4 | 23 ·2 | 2 ·2 |
| 8 ·36 | 1 ·28 | 1 ·71 | 12 26 8 ·3 | 6 ·4 | 23 ·2 | 2 ·2 |
| 7 ·56 | 1 ·29 | 1 ·71 | 12 23 33 ·9 | 6 ·4 | 23 ·2 | 2 ·2 |
| 6 ·59 | 1 ·29 | 1 ·71 | 12 20 58 ·8 | 6 ·5 | 23 ·2 | 2 ·2 |
| 5 ·48 | 1 ·30 | 1 ·71 | 12 18 23 ·0 | 6 ·5 | 23 ·2 | 2 ·2 |
| 4 ·24 | 1 ·30 | 1 ·71 | 12 15 46 ·8 | 6 ·5 | 23 ·3 | 2 ·2 |
| 2 ·89 | 1 ·31 | 1 ·71 | 12 13 10 ·2 | 6 ·5 | 23 ·3 | 2 ·2 |
| 1 ·46 | 1 ·31 | 1 ·71 | 12 10 33 ·3 | 6 ·5 | 23 ·3 | 2 ·2 |
| 9 ·98 | 1 ·31 | 1 ·71 | 12 7 56 ·3 | 6 ·6 | 23 ·3 | 2 ·2 |
| 8 ·47 | 1 ·31 | 1 ·71 | 12 5 19 ·3 | 6 ·6 | 23 ·3 | 2 ·2 |
| 6 ·96 | 1 ·31 | 1 ·71 | 12 2 42 ·4 | 6 ·5 | 23 ·3 | 2 ·2 |
| 5 ·47 | 1 ·31 | 1 ·71 | 12 0 5 ·8 | 6 ·5 | 23 ·3 | 2 ·2 |
| 4 ·03 | 1 ·31 | 1 ·71 | 11 57 29 ·6 | 6 ·5 | 23 ·3 | 2 ·2 |
| 2 ·66 | — 1 ·31 | 1 ·71 | N.11 54 53 ·9 | — 6 ·5 | 23 ·3 | 2 ·2 |

# NOVEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. V |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 2 14 7·72 | N.11 56 8·6 | 0·6001918 | 11 29·5 | 36 3 8·2 | S.1 9 59·8 | 0·696 |
| 2 | 2 13 36·30 | 11 53 32·8 | ·6003620 | 11 25·0 | 36 8 35·4 | 1 9 56·4 | ·696 |
| 3 | 2 13 5·00 | 11 50 57·7 | ·6005659 | 11 20·6 | 36 14 2·6 | 1 9 52·9 | ·696 |
| 4 | 2 12 33·84 | 11 48 23·5 | ·6008036 | 11 16·1 | 36 19 29·7 | 1 9 49·5 | ·696 |
| 5 | 2 12 2·84 | 11 45 50·2 | ·6010749 | 11 11·7 | 36 24 56·9 | 1 9 46·0 | ·696 |
| 6 | 2 11 32·02 | 11 43 18·0 | ·6013795 | 11 7·2 | 36 30 24·0 | 1 9 42·5 | ·696 |
| 7 | 2 11 1·42 | 11 40 47·1 | ·6017173 | 11 2·8 | 36 35 51·1 | 1 9 39·0 | ·696 |
| 8 | 2 10 31·05 | 11 38 17·6 | ·6020879 | 10 58·4 | 36 41 18·2 | 1 9 35·5 | ·696 |
| 9 | 2 10 0·94 | 11 35 49·5 | ·6024911 | 10 53·9 | 36 46 45·3 | 1 9 32·0 | ·696 |
| 10 | 2 9 31·11 | 11 33 23·0 | ·6029266 | 10 49·5 | 36 52 12·3 | 1 9 28·5 | ·696 |
| 11 | 2 9 1·58 | 11 30 58·3 | ·6033941 | 10 45·1 | 36 57 39·4 | 1 9 25·0 | ·696 |
| 12 | 2 8 32·38 | 11 28 35·3 | ·6038933 | 10 40·7 | 37 3 6·4 | 1 9 21·5 | ·696 |
| 13 | 2 8 3·51 | 11 26 14·3 | ·6044240 | 10 36·3 | 37 8 33·4 | 1 9 17·9 | ·696 |
| 14 | 2 7 35·02 | 11 23 55·4 | ·6049858 | 10 31·9 | 37 14 0·3 | 1 9 14·4 | ·696 |
| 15 | 2 7 6·90 | 11 21 38·7 | ·6055783 | 10 27·5 | 37 19 27·2 | 1 9 10·8 | ·696 |
| 16 | 2 6 39·19 | 11 19 24·2 | ·6062013 | 10 23·1 | 37 24 54·1 | 1 9 7·2 | ·696 |
| 17 | 2 6 11·90 | 11 17 12·2 | ·6068542 | 10 18·7 | 37 30 21·1 | 1 9 3·6 | ·696 |
| 18 | 2 5 45·05 | 11 15 2·6 | ·6075368 | 10 14·3 | 37 35 48·0 | 1 9 0·0 | ·696 |
| 19 | 2 5 18·66 | 11 12 55·6 | ·6082486 | 10 10·0 | 37 41 14·9 | 1 8 56·4 | ·696 |
| 20 | 2 4 52·75 | 11 10 51·3 | ·6089891 | 10 5·6 | 37 46 41·7 | 1 8 52·8 | ·696 |
| 21 | 2 4 27·34 | 11 8 49·8 | ·6097580 | 10 1·3 | 37 52 8·6 | 1 8 49·2 | ·696 |
| 22 | 2 4 2·44 | 11 6 51·2 | ·6105547 | 9 56·9 | 37 57 35·4 | 1 8 45·6 | ·696 |
| 23 | 2 3 38·07 | 11 4 55·6 | ·6113788 | 9 52·6 | 38 3 2·2 | 1 8 42·0 | ·696 |
| 24 | 2 3 14·25 | 11 3 3·1 | ·6122299 | 9 48·3 | 38 8 29·0 | 1 8 38·3 | ·696 |
| 25 | 2 2 51·00 | 11 1 13·7 | ·6131075 | 9 44·0 | 38 13 55·7 | 1 8 34·6 | ·696 |
| 26 | 2 2 28·33 | 10 59 27·7 | ·6140111 | 9 39·7 | 38 19 22·4 | 1 8 30·9 | ·696 |
| 27 | 2 2 6·26 | 10 57 45·0 | ·6149402 | 9 35·4 | 38 24 49·1 | 1 8 27·2 | ·696 |
| 28 | 2 1 44·81 | 10 56 5·8 | ·6158945 | 9 31·1 | 38 30 15·8 | 1 8 23·5 | ·696 |
| 29 | 2 1 24·00 | 10 54 30·1 | ·6168731 | 9 26·8 | 38 35 42·5 | 1 8 19·8 | ·696 |
| 30 | 2 1 3·83 | 10 52 58·0 | ·6178755 | 9 22·6 | 38 41 9·2 | 1 8 16·1 | ·696 |
| 31 | 2 0 44·32 | N.10 51 29·6 | 0·6189011 | 9 18·3 | 38 46 35·8 | S.1 8 12·4 | 0·697 |

# NOVEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 2 13 52 ·66 | — 1 ·31 | 1 ·71 | N.11 54 53 ·9 | — 6 ·5 | 23 ·3 | 2 ·2 |
| 2 13 21 ·39 | 1 ·30 | 1 ·71 | 11 52 18 ·9 | 6 ·4 | 23 ·2 | 2 ·2 |
| 2 12 50 ·25 | 1 ·29 | 1 ·71 | 11 49 44 ·7 | 6 ·4 | 23 ·2 | 2 ·2 |
| 2 12 19 ·26 | 1 ·29 | 1 ·71 | 11 47 11 ·4 | 6 ·4 | 23 ·2 | 2 ·1 |
| 2 11 48 ·44 | 1 ·28 | 1 ·71 | 11 44 39 ·1 | 6 ·3 | 23 ·2 | 2 ·1 |
| 2 11 17 ·82 | 1 ·27 | 1 ·71 | 11 42 8 ·0 | 6 ·3 | 23 ·2 | 2 ·1 |
| 2 10 47 ·41 | 1 ·26 | 1 ·70 | 11 39 38 ·2 | 6 ·2 | 23 ·1 | 2 ·1 |
| 2 10 17 ·25 | 1 ·25 | 1 ·70 | 11 37 9 ·7 | 6 ·2 | 23 ·1 | 2 ·1 |
| 2 9 47 ·36 | 1 ·24 | 1 ·70 | 11 34 42 ·8 | 6 ·1 | 23 ·1 | 2 ·1 |
| 2 9 17 ·75 | 1 ·23 | 1 ·70 | 11 32 17 ·5 | 6 ·0 | 23 ·1 | 2 ·1 |
| 2 8 48 ·46 | 1 ·21 | 1 ·69 | 11 29 54 ·0 | 6 ·0 | 23 ·0 | 2 ·1 |
| 2 8 19 ·49 | 1 ·20 | 1 ·69 | 11 27 32 ·4 | 5 ·9 | 23 ·0 | 2 ·1 |
| 2 7 50 ·88 | 1 ·18 | 1 ·68 | 11 25 12 ·7 | 5 ·8 | 23 ·0 | 2 ·1 |
| 2 7 22 ·63 | 1 ·17 | 1 ·67 | 11 22 55 ·2 | 5 ·7 | 22 ·9 | 2 ·1 |
| 2 6 54 ·78 | 1 ·15 | 1 ·67 | 11 20 39 ·8 | 5 ·6 | 22 ·9 | 2 ·1 |
| 2 6 27 ·33 | 1 ·14 | 1 ·67 | 11 18 26 ·8 | 5 ·5 | 22 ·9 | 2 ·1 |
| 2 6 0 ·31 | 1 ·12 | 1 ·67 | 11 16 16 ·2 | 5 ·4 | 22 ·8 | 2 ·1 |
| 2 5 33 ·73 | 1 ·10 | 1 ·67 | 11 14 8 ·1 | 5 ·3 | 22 ·8 | 2 ·1 |
| 2 5 7 ·62 | 1 ·08 | 1 ·67 | 11 12 2 ·6 | 5 ·2 | 22 ·8 | 2 ·1 |
| 2 4 42 ·00 | 1 ·06 | 1 ·66 | 11 9 59 ·8 | 5 ·1 | 22 ·7 | 2 ·1 |
| 2 4 16 ·88 | 1 ·04 | 1 ·66 | 11 7 59 ·9 | 4 ·9 | 22 ·7 | 2 ·1 |
| 2 3 52 ·27 | 1 ·01 | 1 ·65 | 11 6 2 ·9 | 4 ·8 | 22 ·6 | 2 ·1 |
| 2 3 28 ·20 | 0 ·99 | 1 ·65 | 11 4 8 ·9 | 4 ·7 | 22 ·6 | 2 ·1 |
| 2 3 4 ·68 | 0 ·97 | 1 ·64 | 11 2 18 ·0 | 4 ·6 | 22 ·5 | 2 ·1 |
| 2 2 41 ·73 | 0 ·94 | 1 ·64 | 11 0 30 ·3 | 4 ·4 | 22 ·5 | 2 ·1 |
| 2 2 19 ·37 | 0 ·92 | 1 ·64 | 10 58 46 ·0 | 4 ·3 | 22 ·4 | 2 ·1 |
| 2 1 57 ·61 | 0 ·89 | 1 ·64 | 10 57 5 ·0 | 4 ·1 | 22 ·4 | 2 ·1 |
| 2 1 36 ·48 | 0 ·87 | 1 ·63 | 10 55 27 ·4 | 4 ·0 | 22 ·3 | 2 ·1 |
| 2 1 15 ·98 | 0 ·84 | 1 ·63 | 10 53 53 ·4 | 3 ·8 | 22 ·3 | 2 ·1 |
| 2 0 56 ·12 | 0 ·81 | 1 ·63 | 10 52 23 ·0 | 3 ·7 | 22 ·3 | 2 ·1 |
| 2 0 36 ·93 | — 0 ·79 | 1 ·62 | N.10 50 56 ·3 | — 3 ·5 | 22 ·2 | 2 ·1 |

# DECEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 2 0 44·32 | N.10 51 29·6 | 0·6189011 | 9 18·3 | 38 46 35·8 | S.1 8 12·4 | 0·697 |
| 2 | 2 0 25·48 | 10 50 4·9 | ·6199492 | 9 14·1 | 38 52 2·4 | 1 8 8·7 | ·697 |
| 3 | 2 0 7·31 | 10 48 44·1 | ·6210192 | 9 9·8 | 38 57 29·0 | 1 8 4·9 | ·697 |
| 4 | 1 59 49·85 | 10 47 27·2 | ·6221104 | 9 5·6 | 39 2 55·6 | 1 8 1·2 | ·697 |
| 5 | 1 59 33·09 | 10 46 14·1 | ·6232222 | 9 1·4 | 39 8 22·1 | 1 7 57·4 | ·697 |
| 6 | 1 59 17·05 | 10 45 5·1 | ·6243539 | 8 57·2 | 39 13 48·6 | 1 7 53·6 | ·697 |
| 7 | 1 59 1·73 | 10 44 0·1 | ·6255050 | 8 53·1 | 39 19 15·1 | 1 7 49·8 | ·697 |
| 8 | 1 58 47·14 | 10 42 59·2 | ·6266749 | 8 48·9 | 39 24 41·6 | 1 7 46·0 | ·697 |
| 9 | 1 58 33·29 | 10 42 2·4 | ·6278628 | 8 44·7 | 39 30 8·1 | 1 7 42·2 | ·697 |
| 10 | 1 58 20·19 | 10 41 9·8 | ·6290681 | 8 40·6 | 39 35 34·5 | 1 7 38·4 | ·697 |
| 11 | 1 58 7·83 | 10 40 21·3 | ·6302903 | 8 36·4 | 39 41 0·9 | 1 7 34·6 | ·697 |
| 12 | 1 57 56·23 | 10 39 37·0 | ·6315288 | 8 32·3 | 39 46 27·3 | 1 7 30·8 | ·697 |
| 13 | 1 57 45·40 | 10 38 57·0 | ·6327828 | 8 28·2 | 39 51 53·7 | 1 7 26·9 | ·697 |
| 14 | 1 57 35·33 | 10 38 21·3 | ·6340519 | 8 24·1 | 39 57 20·1 | 1 7 23·1 | ·697 |
| 15 | 1 57 26·03 | 10 37 49·8 | ·6353354 | 8 20·0 | 40 2 46·4 | 1 7 19·2 | ·697 |
| 16 | 1 57 17·51 | 10 37 22·6 | ·6366327 | 8 16·0 | 40 8 12·7 | 1 7 15·3 | ·697 |
| 17 | 1 57 9·76 | 10 36 59·8 | ·6379433 | 8 11·9 | 40 13 39·0 | 1 7 11·5 | ·697 |
| 18 | 1 57 2·80 | 10 36 41·3 | ·6392665 | 8 7·9 | 40 19 5·3 | 1 7 7·6 | ·697 |
| 19 | 1 56 56·62 | 10 36 27·1 | ·6406019 | 8 3·8 | 40 24 31·5 | 1 7 3·7 | ·697 |
| 20 | 1 56 51·23 | 10 36 17·4 | ·6419489 | 7 59·8 | 40 29 57·7 | 1 6 59·8 | ·697 |
| 21 | 1 56 46·63 | 10 36 12·0 | ·6433069 | 7 55·8 | 40 35 23·9 | 1 6 55·8 | ·697 |
| 22 | 1 56 42·82 | 10 36 11·0 | ·6446754 | 7 51·8 | 40 40 50·1 | 1 6 51·9 | ·697 |
| 23 | 1 56 39·81 | 10 36 14·4 | ·6460538 | 7 47·8 | 40 46 16·2 | 1 6 48·0 | ·697 |
| 24 | 1 56 37·60 | 10 36 22·3 | ·6474415 | 7 43·9 | 40 51 42·4 | 1 6 44·0 | ·697 |
| 25 | 1 56 36·18 | 10 36 34·5 | ·6488378 | 7 39·9 | 40 57 8·5 | 1 6 40·1 | ·697 |
| 26 | 1 56 35·56 | 10 36 51·1 | ·6502423 | 7 36·0 | 41 2 34·6 | 1 6 36·1 | ·697 |
| 27 | 1 56 35·74 | 10 37 12·1 | ·6516543 | 7 32·1 | 41 8 0·6 | 1 6 32·2 | ·697 |
| 28 | 1 56 36·72 | 10 37 37·5 | ·6530733 | 7 28·1 | 41 13 26·6 | 1 6 28·2 | ·697 |
| 29 | 1 56 38·51 | 10 38 7·2 | ·6544986 | 7 24·2 | 41 18 52·6 | 1 6 24·2 | ·697 |
| 30 | 1 56 41·09 | 10 38 41·3 | ·6559297 | 7 20·4 | 41 24 18·6 | 1 6 20·2 | ·697 |
| 31 | 1 56 44·47 | 10 39 19·7 | ·6573661 | 7 16·5 | 41 29 44·6 | 1 6 16·1 | ·697 |
| 32 | 1 56 48·65 | N.10 40 2·5 | 0·6588071 | 7 12·6 | 41 35 10·5 | S.1 6 12·1 | 0·697 |

# DECEMBER, 1845.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 2 0 36 ·93 | — 0 ·79 | 1 ·62 | N.10 50 56 ·3 | — 3 ·5 | 22 ·2 | 2 ·1 |
| 2 | 2 0 18 ·41 | 0 ·76 | 1 ·62 | 10 49 33 ·4 | 3 ·4 | 22 ·2 | 2 ·1 |
| 3 | 2 0 0 ·56 | 0 ·73 | 1 ·61 | 10 48 14 ·3 | 3 ·2 | 22 ·1 | 2 ·1 |
| 4 | 1 59 43 ·41 | 0 ·70 | 1 ·61 | 10 46 59 ·0 | 3 ·1 | 22 ·1 | 2 ·0 |
| 5 | 1 59 26 ·98 | 0 ·67 | 1 ·60 | 10 45 47 ·7 | 2 ·9 | 22 ·0 | 2 ·0 |
| 6 | 1 59 11 ·25 | 0 ·64 | 1 ·60 | 10 44 40 ·4 | 2 ·7 | 22 ·0 | 2 ·0 |
| 7 | 1 58 56 ·25 | 0 ·61 | 1 ·60 | 10 43 37 ·1 | 2 ·6 | 21 ·9 | 2 ·0 |
| 8 | 1 58 41 ·97 | 0 ·58 | 1 ·59 | 10 42 37 ·9 | 2 ·4 | 21 ·8 | 2 ·0 |
| 9 | 1 58 28 ·43 | 0 ·55 | 1 ·59 | 10 41 42 ·8 | 2 ·2 | 21 ·8 | 2 ·0 |
| 10 | 1 58 15 ·63 | 0 ·52 | 1 ·59 | 10 40 51 ·8 | 2 ·0 | 21 ·7 | 2 ·0 |
| 11 | 1 58 3 ·58 | 0 ·49 | 1 ·58 | 10 40 4 ·9 | 1 ·9 | 21 ·6 | 2 ·0 |
| 12 | 1 57 52 ·29 | 0 ·45 | 1 ·58 | 10 39 22 ·3 | 1 ·7 | 21 ·6 | 2 ·0 |
| 13 | 1 57 41 ·76 | 0 ·42 | 1 ·57 | 10 38 43 ·9 | 1 ·5 | 21 ·5 | 2 ·0 |
| 14 | 1 57 31 ·99 | 0 ·39 | 1 ·57 | 10 38 9 ·8 | 1 ·3 | 21 ·4 | 2 ·0 |
| 15 | 1 57 22 ·98 | 0 ·36 | 1 ·56 | 10 37 39 ·9 | 1 ·2 | 21 ·4 | 2 ·0 |
| 16 | 1 57 14 ·75 | 0 ·33 | 1 ·56 | 10 37 14 ·3 | 1 ·0 | 21 ·3 | 2 ·0 |
| 17 | 1 57 7 ·29 | 0 ·29 | 1 ·55 | 10 36 53 ·0 | 0 ·8 | 21 ·2 | 2 ·0 |
| 18 | 1 57 0 ·62 | 0 ·26 | 1 ·55 | 10 36 36 ·0 | 0 ·6 | 21 ·1 | 2 ·0 |
| 19 | 1 56 54 ·72 | 0 ·23 | 1 ·55 | 10 36 23 ·4 | 0 ·4 | 21 ·1 | 2 ·0 |
| 20 | 1 56 49 ·61 | 0 ·20 | 1 ·54 | 10 36 15 ·1 | 0 ·3 | 21 ·0 | 2 ·0 |
| 21 | 1 56 45 ·28 | 0 ·16 | 1 ·53 | 10 36 11 ·2 | — 0 ·1 | 21 ·0 | 1 ·9 |
| 22 | 1 56 41 ·75 | 0 ·13 | 1 ·53 | 10 36 11 ·6 | + 0 ·1 | 21 ·0 | 1 ·9 |
| 23 | 1 56 39 ·00 | 0 ·10 | 1 ·52 | 10 36 16 ·5 | 0 ·3 | 20 ·9 | 1 ·9 |
| 24 | 1 56 37 ·05 | 0 ·06 | 1 ·52 | 10 36 25 ·7 | 0 ·5 | 20 ·8 | 1 ·9 |
| 25 | 1 56 35 ·89 | — 0 ·03 | 1 ·51 | 10 36 39 ·3 | 0 ·7 | 20 ·7 | 1 ·9 |
| 26 | 1 56 35 ·53 | 0 ·00 | 1 ·51 | 10 36 57 ·3 | 0 ·8 | 20 ·7 | 1 ·9 |
| 27 | 1 56 35 ·96 | + 0 ·03 | 1 ·51 | 10 37 19 ·6 | 1 ·0 | 20 ·6 | 1 ·9 |
| 28 | 1 56 37 ·19 | 0 ·07 | 1 ·50 | 10 37 46 ·3 | 1 ·2 | 20 ·5 | 1 ·9 |
| 29 | 1 56 39 ·22 | 0 ·10 | 1 ·50 | 10 38 17 ·3 | 1 ·4 | 20 ·5 | 1 ·9 |
| 30 | 1 56 42 ·04 | 0 ·13 | 1 ·49 | 10 38 52 ·6 | 1 ·6 | 20 ·4 | 1 ·9 |
| 31 | 1 56 45 ·65 | 0 ·17 | 1 ·49 | 10 39 32 ·2 | 1 ·7 | 20 ·3 | 1 ·9 |
| 32 | 1 56 50 ·05 | + 0 ·20 | 1 ·48 | N.10 40 16 ·1 | + 1 ·9 | 20 ·2 | 1 ·9 |

# JANUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *N* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 20 35 52·67 | S. 19 19 2·1 | 1·0345776 | 1 51·6 | 308 50 39·6 | S. 0 42 35·5 | 0·99 |
| 2 | 20 36 20·30 | 19 17 23·6 | ·0348570 | 1 48·2 | 308 52 30·4 | 0 42 40·1 | ·99 |
| 3 | 20 36 48·06 | 19 15 44·3 | ·0351265 | 1 44·7 | 308 54 21·3 | 0 42 44·7 | ·99 |
| 4 | 20 37 15·94 | 19 14 4·4 | ·0353862 | 1 41·2 | 308 56 12·1 | 0 42 49·3 | ·99 |
| 5 | 20 37 43·93 | 19 12 23·8 | ·0356361 | 1 37·7 | 308 58 3·0 | 0 42 53·9 | ·99 |
| 6 | 20 38 12·03 | 19 10 42·6 | ·0358760 | 1 34·3 | 308 59 53·9 | 0 42 58·5 | ·99 |
| 7 | 20 38 40·23 | 19 9 0·7 | ·0361059 | 1 30·8 | 309 1 44·7 | 0 43 3·2 | ·99 |
| 8 | 20 39 8·53 | 19 7 18·2 | ·0363258 | 1 27·3 | 309 3 35·6 | 0 43 7·8 | ·99 |
| 9 | 20 39 36·93 | 19 5 35·2 | ·0365356 | 1 23·9 | 309 5 26·5 | 0 43 12·4 | ·99 |
| 10 | 20 40 5·42 | 19 3 51·5 | ·0367353 | 1 20·4 | 309 7 17·4 | 0 43 17·0 | ·99 |
| 11 | 20 40 33·98 | 19 2 7·4 | ·0369248 | 1 17·0 | 309 9 8·3 | 0 43 21·6 | ·99 |
| 12 | 20 41 2·63 | 19 0 22·6 | ·0371042 | 1 13·6 | 309 10 59·2 | 0 43 26·2 | ·99 |
| 13 | 20 41 31·35 | 18 58 37·4 | ·0372734 | 1 10·1 | 309 12 50·1 | 0 43 30·8 | ·99 |
| 14 | 20 42 0·13 | 18 56 51·7 | ·0374323 | 1 6·6 | 309 14 41·0 | 0 43 35·5 | ·99 |
| 15 | 20 42 28·98 | 18 55 5·5 | ·0375811 | 1 3·1 | 309 16 31·9 | 0 43 40·1 | ·99 |
| 16 | 20 42 57·88 | 18 53 18·8 | ·0377196 | 0 59·7 | 309 18 22·8 | 0 43 44·7 | ·99 |
| 17 | 20 43 26·84 | 18 51 31·7 | ·0378478 | 0 56·2 | 309 20 13·7 | 0 43 49·3 | ·99 |
| 18 | 20 43 55·84 | 18 49 44·1 | ·0379658 | 0 52·8 | 309 22 4·6 | 0 43 53·9 | ·99 |
| 19 | 20 44 24·88 | 18 47 56·1 | ·0380735 | 0 49·4 | 309 23 55·5 | 0 43 58·5 | ·99 |
| 20 | 20 44 53·96 | 18 46 7·7 | ·0381710 | 0 45·9 | 309 25 46·4 | 0 44 3·1 | ·99 |
| 21 | 20 45 23·07 | 18 44 18·9 | ·0382582 | 0 42·5 | 309 27 37·3 | 0 44 7·7 | ·99 |
| 22 | 20 45 52·21 | 18 42 29·8 | ·0383352 | 0 39·0 | 309 29 28·2 | 0 44 12·3 | ·99 |
| 23 | 20 46 21·38 | 18 40 40·3 | ·0384018 | 0 35·6 | 309 31 19·2 | 0 44 16·9 | ·99 |
| 24 | 20 46 50·57 | 18 38 50·4 | ·0384583 | 0 32·1 | 309 33 10·1 | 0 44 21·5 | ·99 |
| 25 | 20 47 19·77 | 18 37 0·3 | ·0385044 | 0 28·7 | 309 35 1·0 | 0 44 26·1 | ·99 |
| 26 | 20 47 48·99 | 18 35 9·9 | ·0385403 | 0 25·2 | 309 36 51·9 | 0 44 30·7 | ·99 |
| 27 | 20 48 18·21 | 18 33 19·1 | ·0385659 | 0 21·8 | 309 38 42·9 | 0 44 35·3 | ·99 |
| 28 | 20 48 47·44 | 18 31 28·2 | ·0385812 | 0 18·3 | 309 40 33·8 | 0 44 39·9 | ·99 |
| 29 | 20 49 16·67 | 18 29 36·9 | ·0385861 | 0 14·9 | 309 42 24·7 | 0 44 44·5 | ·99 |
| 30 | 20 49 45·89 | 18 27 45·5 | ·0385808 | 0 11·4 | 309 44 15·7 | 0 44 49·1 | ·99 |
| 31 | 20 50 15·10 | 18 25 53·8 | ·0385651 | 0 8·0 | 309 46 6·6 | 0 44 53·7 | ·99 |
| 32 | 20 50 44·29 | S. 18 24 1·9 | 1·0385391 | 0 4·5 | 309 47 57·5 | S. 0 44 58·3 | 0·99 |

# JANUARY, 1845.

At Transit over the Meridian of Greenwich.

| *pparent* Right cension. | Variation of Right Asc. in 1 hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 5 54 ·81 | + 1 ·15 | 0 ·53 | S. 19 18 54 ·5 | + 4 ·1 | 7 ·0 | 0 ·8 |
| 6 22 ·38 | 1 ·15 | 0 ·53 | 19 17 16 ·1 | 4 ·1 | 7 ·0 | 0 ·8 |
| 6 50 ·08 | 1 ·16 | 0 ·53 | 19 15 37 ·1 | 4 ·1 | 7 ·0 | 0 ·8 |
| 7 17 ·90 | 1 ·16 | 0 ·53 | 19 13 57 ·3 | 4 ·2 | 7 ·0 | 0 ·8 |
| 7 45 ·83 | 1 ·17 | 0 ·53 | 19 12 16 ·9 | 4 ·2 | 7 ·0 | 0 ·8 |
| 8 13 ·87 | 1 ·17 | 0 ·53 | 19 10 35 ·9 | 4 ·2 | 7 ·0 | 0 ·8 |
| 8 42 ·01 | 1 ·17 | 0 ·53 | 19 8 54 ·3 | 4 ·2 | 7 ·0 | 0 ·8 |
| 9 10 ·25 | 1 ·18 | 0 ·53 | 19 7 12 ·0 | 4 ·3 | 7 ·0 | 0 ·8 |
| 9 38 ·59 | 1 ·18 | 0 ·53 | 19 5 29 ·1 | 4 ·3 | 7 ·0 | 0 ·8 |
| 0 7 ·01 | 1 ·19 | 0 ·53 | 19 3 45 ·7 | 4 ·3 | 7 ·0 | 0 ·8 |
| 0 35 ·51 | 1 ·19 | 0 ·52 | 19 2 1 ·8 | 4 ·3 | 6 ·9 | 0 ·8 |
| 1 4 ·09 | 1 ·19 | 0 ·52 | 19 0 17 ·3 | 4 ·4 | 6 ·9 | 0 ·8 |
| 1 32 ·75 | 1 ·20 | 0 ·52 | 18 58 32 ·3 | 4 ·4 | 6 ·9 | 0 ·8 |
| 2 1 ·47 | 1 ·20 | 0 ·52 | 18 56 46 ·8 | 4 ·4 | 6 ·9 | 0 ·8 |
| 2 30 ·25 | 1 ·20 | 0 ·52 | 18 55 0 ·8 | 4 ·4 | 6 ·9 | 0 ·8 |
| 2 59 ·08 | 1 ·20 | 0 ·52 | 18 53 14 ·4 | 4 ·4 | 6 ·9 | 0 ·8 |
| 3 27 ·97 | 1 ·20 | 0 ·52 | 18 51 27 ·5 | 4 ·5 | 6 ·9 | 0 ·8 |
| 3 56 ·91 | 1 ·21 | 0 ·52 | 18 49 40 ·1 | 4 ·5 | 6 ·9 | 0 ·8 |
| 4 25 ·88 | 1 ·21 | 0 ·52 | 18 47 52 ·4 | 4 ·5 | 6 ·9 | 0 ·8 |
| 4 54 ·89 | 1 ·21 | 0 ·52 | 18 46 4 ·2 | 4 ·5 | 6 ·9 | 0 ·8 |
| 5 23 ·93 | 1 ·21 | 0 ·52 | 18 44 15 ·7 | 4 ·5 | 6 ·9 | 0 ·8 |
| 5 53 ·01 | 1 ·21 | 0 ·52 | 18 42 26 ·8 | 4 ·5 | 6 ·9 | 0 ·8 |
| 6 22 ·11 | 1 ·21 | 0 ·52 | 18 40 37 ·6 | 4 ·6 | 6 ·9 | 0 ·8 |
| 6 51 ·22 | 1 ·21 | 0 ·52 | 18 38 48 ·0 | 4 ·6 | 6 ·9 | 0 ·8 |
| 7 20 ·35 | 1 ·21 | 0 ·52 | 18 36 58 ·1 | 4 ·6 | 6 ·9 | 0 ·8 |
| 7 49 ·50 | 1 ·21 | 0 ·52 | 18 35 7 ·9 | 4 ·6 | 6 ·9 | 0 ·8 |
| 8 18 ·66 | 1 ·21 | 0 ·52 | 18 33 17 ·5 | 4 ·6 | 6 ·9 | 0 ·8 |
| 8 47 ·81 | 1 ·21 | 0 ·52 | 18 31 26 ·8 | 4 ·6 | 6 ·9 | 0 ·8 |
| 9 16 ·97 | 1 ·21 | 0 ·52 | 18 29 35 ·8 | 4 ·6 | 6 ·9 | 0 ·8 |
| 9 46 ·12 | 1 ·21 | 0 ·52 | 18 27 44 ·6 | 4 ·6 | 6 ·9 | 0 ·8 |
| 0 15 ·26 | 1 ·21 | 0 ·52 | 18 25 53 ·2 | 4 ·6 | 6 ·9 | 0 ·8 |
| 0 44 ·39 | + 1 ·21 | 0 ·52 | S. 18 24 1 ·6 | + 4 ·7 | 6 ·9 | 0 ·8 |

# JANUARY, 1845.

At Transit over the Meridian of Greenwich.

| *pparent* Right scension. | Variation of Right Asc. in 1 hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 35 54 ·81 | + 1 ·15 | 0 ·53 | S. 19 18 54 ·5 | + 4 ·1 | 7 ·0 | 0 ·8 |
| 36 22 ·38 | 1 ·15 | 0 ·53 | 19 17 16 ·1 | 4 ·1 | 7 ·0 | 0 ·8 |
| 36 50 ·08 | 1 ·16 | 0 ·53 | 19 15 37 ·1 | 4 ·1 | 7 ·0 | 0 ·8 |
| 37 17 ·90 | 1 ·16 | 0 ·53 | 19 13 57 ·3 | 4 ·2 | 7 ·0 | 0 ·8 |
| 37 45 ·83 | 1 ·17 | 0 ·53 | 19 12 16 ·9 | 4 ·2 | 7 ·0 | 0 ·8 |
| 38 13 ·87 | 1 ·17 | 0 ·53 | 19 10 35 ·9 | 4 ·2 | 7 ·0 | 0 ·8 |
| 38 42 ·01 | 1 ·17 | 0 ·53 | 19 8 54 ·3 | 4 ·2 | 7 ·0 | 0 ·8 |
| 39 10 ·25 | 1 ·18 | 0 ·53 | 19 7 12 ·0 | 4 ·3 | 7 ·0 | 0 ·8 |
| 39 38 ·59 | 1 ·18 | 0 ·53 | 19 5 29 ·1 | 4 ·3 | 7 ·0 | 0 ·8 |
| 40 7 ·01 | 1 ·19 | 0 ·53 | 19 3 45 ·7 | 4 ·3 | 7 ·0 | 0 ·8 |
| 40 35 ·51 | 1 ·19 | 0 ·52 | 19 2 1 ·8 | 4 ·3 | 6 ·9 | 0 ·8 |
| 41 4 ·09 | 1 ·19 | 0 ·52 | 19 0 17 ·3 | 4 ·4 | 6 ·9 | 0 ·8 |
| 41 32 ·75 | 1 ·20 | 0 ·52 | 18 58 32 ·3 | 4 ·4 | 6 ·9 | 0 ·8 |
| 42 1 ·47 | 1 ·20 | 0 ·52 | 18 56 46 ·8 | 4 ·4 | 6 ·9 | 0 ·8 |
| 42 30 ·25 | 1 ·20 | 0 ·52 | 18 55 0 ·8 | 4 ·4 | 6 ·9 | 0 ·8 |
| 42 59 ·08 | 1 ·20 | 0 ·52 | 18 53 14 ·4 | 4 ·4 | 6 ·9 | 0 ·8 |
| 43 27 ·97 | 1 ·20 | 0 ·52 | 18 51 27 ·5 | 4 ·5 | 6 ·9 | 0 ·8 |
| 43 56 ·91 | 1 ·21 | 0 ·52 | 18 49 40 ·1 | 4 ·5 | 6 ·9 | 0 ·8 |
| 44 25 ·88 | 1 ·21 | 0 ·52 | 18 47 52 ·4 | 4 ·5 | 6 ·9 | 0 ·8 |
| 44 54 ·89 | 1 ·21 | 0 ·52 | 18 46 4 ·2 | 4 ·5 | 6 ·9 | 0 ·8 |
| 45 23 ·93 | 1 ·21 | 0 ·52 | 18 44 15 ·7 | 4 ·5 | 6 ·9 | 0 ·8 |
| 45 53 ·01 | 1 ·21 | 0 ·52 | 18 42 26 ·8 | 4 ·5 | 6 ·9 | 0 ·8 |
| 46 22 ·11 | 1 ·21 | 0 ·52 | 18 40 37 ·6 | 4 ·6 | 6 ·9 | 0 ·8 |
| 46 51 ·22 | 1 ·21 | 0 ·52 | 18 38 48 ·0 | 4 ·6 | 6 ·9 | 0 ·8 |
| 47 20 ·35 | 1 ·21 | 0 ·52 | 18 36 58 ·1 | 4 ·6 | 6 ·9 | 0 ·8 |
| 47 49 ·50 | 1 ·21 | 0 ·52 | 18 35 7 ·9 | 4 ·6 | 6 ·9 | 0 ·8 |
| 48 18 ·66 | 1 ·21 | 0 ·52 | 18 33 17 ·5 | 4 ·6 | 6 ·9 | 0 ·8 |
| 48 47 ·81 | 1 ·21 | 0 ·52 | 18 31 26 ·8 | 4 ·6 | 6 ·9 | 0 ·8 |
| 49 16 ·97 | 1 ·21 | 0 ·52 | 18 29 35 ·8 | 4 ·6 | 6 ·9 | 0 ·8 |
| 49 46 ·12 | 1 ·21 | 0 ·52 | 18 27 44 ·6 | 4 ·6 | 6 ·9 | 0 ·8 |
| 50 15 ·26 | 1 ·21 | 0 ·52 | 18 25 53 ·2 | 4 ·6 | 6 ·9 | 0 ·8 |
| 50 44 ·39 | + 1 ·21 | 0 ·52 | S. 18 24 1 ·6 | + 4 ·7 | 6 ·9 | 0 ·8 |

# FEBRUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 20 50 44·29 | S. 18 24 1·9 | 1·0385391 | 0 4·5 | 309 47 57·5 | S. 0 44 58·3 | 0·997 |
| 2 | 20 51 13·47 | 18 22 9·9 | ·0385028 | {0 1·1 / 23 57·6} | 309 49 48·5 | 0 45 2·9 | ·997 |
| 3 | 20 51 42·62 | 18 20 17·7 | ·0384561 | 23 54·2 | 309 51 39·4 | 0 45 7·5 | ·997 |
| 4 | 20 52 11·73 | 18 18 25·4 | ·0383990 | 23 50·7 | 309 53 30·4 | 0 45 12·1 | ·997 |
| 5 | 20 52 40·82 | 18 16 32·9 | ·0383315 | 23 47·3 | 309 55 21·4 | 0 45 16·7 | ·997 |
| 6 | 20 53 9·86 | 18 14 40·4 | ·0382537 | 23 43·8 | 309 57 12·3 | 0 45 21·3 | ·997 |
| 7 | 20 53 38·86 | 18 12 47·8 | ·0381656 | 23 40·4 | 309 59 3·3 | 0 45 25·9 | ·997 |
| 8 | 20 54 7·81 | 18 10 55·2 | ·0380671 | 23 36·9 | 310 0 54·2 | 0 45 30·5 | ·997 |
| 9 | 20 54 36·71 | 18 9 2·6 | ·0379584 | 23 33·5 | 310 2 45·2 | 0 45 35·1 | ·997 |
| 10 | 20 55 5·55 | 18 7 9·9 | ·0378394 | 23 30·0 | 310 4 36·2 | 0 45 39·7 | ·997 |
| 11 | 20 55 34·32 | 18 5 17·3 | ·0377103 | 23 26·5 | 310 6 27·2 | 0 45 44·3 | ·997 |
| 12 | 20 56 3·02 | 18 3 24·8 | ·0375709 | 23 23·1 | 310 8 18·2 | 0 45 48·9 | ·997 |
| 13 | 20 56 31·65 | 18 1 32·4 | ·0374214 | 23 19·7 | 310 10 9·1 | 0 45 53·5 | ·997 |
| 14 | 20 57 0·19 | 17 59 40·0 | ·0372618 | 23 16·2 | 310 12 0·1 | 0 45 58·0 | ·997 |
| 15 | 20 57 28·65 | 17 57 47·8 | ·0370922 | 23 12·7 | 310 13 51·1 | 0 46 2·6 | ·997 |
| 16 | 20 57 57·03 | 17 55 55·7 | ·0369125 | 23 9·3 | 310 15 42·1 | 0 46 7·2 | ·997 |
| 17 | 20 58 25·31 | 17 54 3·8 | ·0367228 | 23 5·8 | 310 17 33·1 | 0 46 11·8 | ·997 |
| 18 | 20 58 53·50 | 17 52 12·0 | ·0365233 | 23 2·3 | 310 19 24·1 | 0 46 16·4 | ·997 |
| 19 | 20 59 21·59 | 17 50 20·4 | ·0363138 | 22 58·9 | 310 21 15·1 | 0 46 21·0 | ·997 |
| 20 | 20 59 49·58 | 17 48 29·1 | ·0360945 | 22 55·4 | 310 23 6·1 | 0 46 25·6 | ·997 |
| 21 | 21 0 17·45 | 17 46 37·9 | ·0358653 | 22 51·9 | 310 24 57·1 | 0 46 30·2 | ·997 |
| 22 | 21 0 45·22 | 17 44 47·1 | ·0356263 | 22 48·4 | 310 26 48·1 | 0 46 34·7 | ·997 |
| 23 | 21 1 12·87 | 17 42 56·5 | ·0353776 | 22 45·0 | 310 28 39·1 | 0 46 39·3 | ·997 |
| 24 | 21 1 40·40 | 17 41 6·2 | ·0351192 | 22 41·5 | 310 30 30·1 | 0 46 43·9 | ·997 |
| 25 | 21 2 7·81 | 17 39 16·3 | ·0348511 | 22 38·0 | 310 32 21·2 | 0 46 48·5 | ·997 |
| 26 | 21 2 35·09 | 17 37 26·7 | ·0345734 | 22 34·5 | 310 34 12·2 | 0 46 53·1 | ·997 |
| 27 | 21 3 2·23 | 17 35 37·4 | ·0342861 | 22 31·0 | 310 36 3·2 | 0 46 57·6 | ·997 |
| 28 | 21 3 29·24 | 17 33 48·5 | ·0339893 | 22 27·6 | 310 37 54·3 | 0 47 2·2 | ·997 |
| 29 | 21 3 56·11 | S. 17 32 0·1 | 1·0336829 | 22 24·1 | 310 39 45·3 | S. 0 47 6·8 | 0·997 |

# FEBRUARY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 20 50 44 ·39 | + 1 ·21 | 0 ·52 | S. 18 24 1 ·6 | + 4 ·7 | 6 ·9 | 0 ·8 |
| {20 51 13 ·49 / 20 51 42 ·57} | {1 ·21 / 1 ·21} | {0 ·52 / 0 ·52} | {18 22 8 ·8 / 18 20 17 ·9} | {4 ·7 / 4 ·7} | {6 ·9 / 6 ·9} | {0 ·8 / 0 ·8} |
| 20 52 11 ·61 | 1 ·21 | 0 ·52 | 18 18 25 ·8 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 52 40 ·62 | 1 ·21 | 0 ·52 | 18 16 33 ·6 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 53 9 ·60 | 1 ·21 | 0 ·52 | 18 14 41 ·4 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 53 38 ·53 | 1 ·20 | 0 ·52 | 18 12 49 ·1 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 54 7 ·42 | 1 ·20 | 0 ·52 | 18 10 56 ·7 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 54 36 ·25 | 1 ·20 | 0 ·52 | 18 9 4 ·4 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 55 5 ·02 | 1 ·20 | 0 ·52 | 18 7 12 ·0 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 55 33 ·72 | 1 ·19 | 0 ·52 | 18 5 19 ·7 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 56 2 ·36 | 1 ·19 | 0 ·52 | 18 3 27 ·4 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 56 30 ·91 | 1 ·19 | 0 ·52 | 18 1 35 ·2 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 56 59 ·39 | 1 ·18 | 0 ·52 | 17 59 43 ·2 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 57 27 ·79 | 1 ·18 | 0 ·52 | 17 57 51 ·2 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 57 56 ·10 | 1 ·18 | 0 ·52 | 17 55 59 ·4 | 4 ·7 | 6 ·9 | 0 ·8 |
| 20 58 24 ·32 | 1 ·17 | 0 ·52 | 17 54 7 ·7 | 4 ·6 | 6 ·9 | 0 ·8 |
| 20 58 52 ·44 | 1 ·17 | 0 ·53 | 17 52 16 ·2 | 4 ·6 | 7 ·0 | 0 ·8 |
| 20 59 20 ·47 | 1 ·17 | 0 ·53. | 17 50 24 ·9 | 4 ·6 | 7 ·0 | 0 ·8 |
| 20 59 48 ·39 | 1 ·16 | 0 ·53 | 17 48 33 ·8 | 4 ·6 | 7 ·0 | 0 ·8 |
| 21 0 16 ·21 | 1 ·16 | 0 ·53 | 17 46 42 ·9 | 4 ·6 | 7 ·0 | 0 ·8 |
| 21 0 43 ·91 | 1 ·15 | 0 ·53 | 17 44 52 ·3 | 4 ·6 | 7 ·0 | 0 ·8 |
| 21 1 11 ·50 | 1 ·15 | 0 ·53 | 17 43 2 ·0 | 4 ·6 | 7 ·0 | 0 ·8 |
| 21 1 38 ·97 | 1 ·14 | 0 ·53 | 17 41 11 ·9 | 4 ·6 | 7 ·0 | 0 ·8 |
| 21 2 6 ·32 | 1 ·14 | 0 ·53 | 17 39 22 ·3 | 4 ·6 | 7 ·0 | 0 ·8 |
| 21 2 33 ·54 | 1 ·13 | 0 ·53 | 17 37 32 ·9 | 4 ·6 | 7 ·0 | 0 ·8 |
| 21 3 0 ·63 | 1 ·13 | 0 ·53 | 17 35 43 ·9 | 4 ·5 | 7 ·0 | 0 ·8 |
| 21 3 27 ·58 | 1 ·12 | 0 ·53 | 17 33 55 ·3 | 4 ·5 | 7 ·0 | 0 ·8 |
| 21 3 54 ·39 | 1 ·11 | 0 ·53 | 17 32 7 ·0 | 4 ·5 | 7 ·0 | 0 ·8 |
| 21 4 21 ·06 | + 1 ·11 | 0 ·53 | S. 17 30 19 ·2 | + 4 ·5 | 7 ·0 | 0 ·8 |

# MARCH, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 3 56·11 | S. 17 32 0·1 | 1·0336829 | 22 24·1 | 310 39 45·3 | S. 0 47 6·8 | 0·99 |
| 2 | 21 4 22·84 | 17 30 12·0 | ·0333670 | 22 20·6 | 310 41 36·3 | 0 47 11·4 | ·99 |
| 3 | 21 4 49·42 | 17 28 24·4 | ·0330417 | 22 17·1 | 310 43 27·4 | 0 47 16·0 | ·99 |
| 4 | 21 5 15·84 | 17 26 37·4 | ·0327069 | 22 13·6 | 310 45 18·4 | 0 47 20·6 | ·99 |
| 5 | 21 5 42·11 | 17 24 50·8 | ·0323628 | 22 10·1 | 310 47 9·5 | 0 47 25·1 | ·99 |
| 6 | 21 6 8·21 | 17 23 4·7 | ·0320095 | 22 6·6 | 310 49 0·5 | 0 47 29·7 | ·99 |
| 7 | 21 6 34·14 | 17 21 19·2 | ·0316469 | 22 3·1 | 310 50 51·6 | 0 47 34·3 | ·99 |
| 8 | 21 6 59·91 | 17 19 34·3 | ·0312752 | 21 59·6 | 310 52 42·6 | 0 47 38·9 | ·99 |
| 9 | 21 7 25·50 | 17 17 50·0 | ·0308944 | 21 56·1 | 310 54 33·7 | 0 47 43·4 | ·99 |
| 10 | 21 7 50·90 | 17 16 6·3 | ·0305046 | 21 52·6 | 310 56 24·8 | 0 47 48·0 | ·99 |
| 11 | 21 8 16·11 | 17 14 23·2 | ·0301058 | 21 49·0 | 310 58 15·9 | 0 47 52·6 | ·99 |
| 12 | 21 8 41·14 | 17 12 40·9 | ·0296983 | 21 45·5 | 311 0 6·9 | 0 47 57·1 | ·99 |
| 13 | 21 9 5·97 | 17 10 59·2 | ·0292819 | 21 42·0 | 311 1 58·0 | 0 48 1·7 | ·99 |
| 14 | 21 9 30·61 | 17 9 18·2 | ·0288569 | 21 38·5 | 311 3 49·1 | 0 48 6·3 | ·99 |
| 15 | 21 9 55·04 | 17 7 38·0 | ·0284233 | 21 34·9 | 311 5 40·2 | 0 48 10·9 | ·99 |
| 16 | 21 10 19·27 | 17 5 58·5 | ·0279813 | 21 31·4 | 311 7 31·3 | 0 48 15·4 | ·99 |
| 17 | 21 10 43·28 | 17 4 19·9 | ·0275308 | 21 27·9 | 311 9 22·4 | 0 48 20·0 | ·99 |
| 18 | 21 11 7·09 | 17 2 42·0 | ·0270720 | 21 24·3 | 311 11 13·5 | 0 48 24·6 | ·99 |
| 19 | 21 11 30·68 | 17 1 5·0 | ·0266050 | 21 20·8 | 311 13 4·6 | 0 48 29·1 | ·99 |
| 20 | 21 11 54·05 | 16 59 28·8 | ·0261298 | 21 17·2 | 311 14 55·7 | 0 48 33·7 | ·99 |
| 21 | 21 12 17·20 | 16 57 53·5 | ·0256466 | 21 13·7 | 311 16 46·8 | 0 48 38·3 | ·99 |
| 22 | 21 12 40·13 | 16 56 19·0 | ·0251555 | 21 10·1 | 311 18 37·9 | 0 48 42·8 | ·99 |
| 23 | 21 13 2·83 | 16 54 45·5 | ·0246564 | 21 6·6 | 311 20 29·0 | 0 48 47·4 | ·99 |
| 24 | 21 13 25·29 | 16 53 12·9 | ·0241495 | 21 3·0 | 311 22 20·2 | 0 48 52·0 | ·99 |
| 25 | 21 13 47·51 | 16 51 41·3 | ·0236349 | 20 59·4 | 311 24 11·3 | 0 48 56·5 | ·99 |
| 26 | 21 14 9·49 | 16 50 10·6 | ·0231127 | 20 55·9 | 311 26 2·4 | 0 49 1·1 | ·99 |
| 27 | 21 14 31·22 | 16 48 41·0 | ·0225829 | 20 52·3 | 311 27 53·6 | 0 49 5·6 | ·99 |
| 28 | 21 14 52·70 | 16 47 12·4 | ·0220456 | 20 48·7 | 311 29 44·7 | 0 49 10·2 | ·99 |
| 29 | 21 15 13·92 | 16 45 44·8 | ·0215009 | 20 45·1 | 311 31 35·9 | 0 49 14·8 | ·99 |
| 30 | 21 15 34·89 | 16 44 18·4 | ·0209490 | 20 41·6 | 311 33 27·0 | 0 49 19·3 | ·99 |
| 31 | 21 15 55·60 | 16 42 53·0 | ·0203899 | 20 38·0 | 311 35 18·2 | 0 49 23·9 | ·99 |
| 32 | 21 16 16·04 | S. 16 41 28·7 | 1·0198237 | 20 34·4 | 311 37 9·3 | S. 0 49 28·5 | 0·99 |

# MARCH, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 21 4 21 ·06 | + 1 ·11 | 0 ·53 | S.17 30 19 ·2 | + 4 ·5 | 7 ·0 | 0 ·8 |
| 21 4 47 ·59 | 1 ·10 | 0 ·53 | 17 28 31 ·8 | 4 ·5 | 7 ·0 | 0 ·8 |
| 21 5 13 ·96 | 1 ·10 | 0 ·53 | 17 26 45 ·0 | 4 ·4 | 7 ·0 | 0 ·8 |
| 21 5 40 ·17 | 1 ·09 | 0 ·53 | 17 24 58 ·6 | 4 ·4 | 7 ·0 | 0 ·8 |
| 21 6 6 ·22 | 1 ·08 | 0 ·53 | 17 23 12 ·8 | 4 ·4 | 7 ·0 | 0 ·8 |
| 21 6 32 ·11 | 1 ·08 | 0 ·53 | 17 21 27 ·5 | 4 ·4 | 7 ·1 | 0 ·8 |
| 21 6 57 ·83 | 1 ·07 | 0 ·53 | 17 19 42 ·8 | 4 ·4 | 7 ·1 | 0 ·8 |
| 21 7 23 ·36 | 1 ·06 | 0 ·53 | 17 17 58 ·7 | 4 ·3 | 7 ·1 | 0 ·8 |
| 21 7 48 ·72 | 1 ·05 | 0 ·53 | 17 16 15 ·2 | 4 ·3 | 7 ·1 | 0 ·8 |
| 21 8 13 ·89 | 1 ·04 | 0 ·53 | 17 14 32 ·3 | 4 ·3 | 7 ·1 | 0 ·8 |
| 21 8 38 ·87 | 1 ·04 | 0 ·53 | 17 12 50 ·1 | 4 ·2 | 7 ·1 | 0 ·8 |
| 21 9 3 ·66 | 1 ·03 | 0 ·53 | 17 11 8 ·6 | 4 ·2 | 7 ·1 | 0 ·8 |
| 21 9 28 ·26 | 1 ·02 | 0 ·53 | 17 9 27 ·8 | 4 ·2 | 7 ·1 | 0 ·8 |
| 21 9 52 ·65 | 1 ·01 | 0 ·53 | 17 7 47 ·8 | 4 ·2 | 7 ·1 | 0 ·8 |
| 21 10 16 ·84 | 1 ·00 | 0 ·53 | 17 6 8 ·5 | 4 ·1 | 7 ·1 | 0 ·8 |
| 21 10 40 ·82 | 0 ·99 | 0 ·53 | 17 4 30 ·0 | 4 ·1 | 7 ·1 | 0 ·8 |
| 21 11 4 ·59 | 0 ·99 | 0 ·53 | 17 2 52 ·3 | 4 ·1 | 7 ·1 | 0 ·8 |
| 21 11 28 ·14 | 0 ·98 | 0 ·53 | 17 1 15 ·4 | 4 ·0 | 7 ·1 | 0 ·8 |
| 21 11 51 ·48 | 0 ·97 | 0 ·53 | 16 59 39 ·4 | 4 ·0 | 7 ·1 | 0 ·8 |
| 21 12 14 ·60 | 0 ·96 | 0 ·53 | 16 58 4 ·2 | 4 ·0 | 7 ·1 | 0 ·8 |
| 21 12 37 ·50 | 0 ·95 | 0 ·54 | 16 56 29 ·9 | 3 ·9 | 7 ·1 | 0 ·8 |
| 21 13 0 ·16 | 0 ·94 | 0 ·54 | 16 54 56 ·5 | 3 ·9 | 7 ·1 | 0 ·8 |
| 21 13 22 ·60 | 0 ·93 | 0 ·54 | 16 53 24 ·0 | 3 ·8 | 7 ·1 | 0 ·8 |
| 21 13 44 ·79 | 0 ·92 | 0 ·54 | 16 51 52 ·5 | 3 ·8 | 7 ·1 | 0 ·8 |
| 21 14 6 ·75 | 0 ·91 | 0 ·54 | 16 50 21 ·9 | 3 ·8 | 7 ·1 | 0 ·8 |
| 21 14 28 ·45 | 0 ·90 | 0 ·54 | 16 48 52 ·4 | 3 ·7 | 7 ·1 | 0 ·8 |
| 21 14 49 ·91 | 0 ·89 | 0 ·54 | 16 47 23 ·9 | 3 ·7 | 7 ·1 | 0 ·8 |
| 21 15 11 ·12 | 0 ·88 | 0 ·54 | 16 45 56 ·4 | 3 ·6 | 7 ·1 | 0 ·8 |
| 21 15 32 ·07 | 0 ·87 | 0 ·54 | 16 44 30 ·0 | 3 ·6 | 7 ·1 | 0 ·8 |
| 21 15 52 ·76 | 0 ·86 | 0 ·54 | 16 43 4 ·7 | 3 ·5 | 7 ·1 | 0 ·8 |
| 21 16 13 ·19 | 0 ·85 | 0 ·54 | 16 41 40 ·5 | 3 ·5 | 7 ·1 | 0 ·8 |
| 21 16 33 ·36 | + 0 ·83 | 0 ·54 | S.16 40 17 ·4 | + 3 ·4 | 7 ·2 | 0 ·8 |

# APRIL, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 16 16·04 | S. 16 41 28·7 | 1·0198237 | 20 34·4 | 311 37 9·3 | S. 0 49 28·5 | 0·997 |
| 2 | 21 16 36·22 | 16 40 5·6 | ·0192504 | 20 30·8 | 311 39 0·5 | 0 49 33·0 | ·99 |
| 3 | 21 16 56·14 | 16 38 43·6 | ·0186703 | 20 27·2 | 311 40 51·7 | 0 49 37·6 | ·99 |
| 4 | 21 17 15·77 | 16 37 22·7 | ·0180834 | 20 23·5 | 311 42 42·9 | 0 49 42·1 | ·99 |
| 5 | 21 17 35·13 | 16 36 3·1 | ·0174900 | 20 19·9 | 311 44 34·1 | 0 49 46·7 | ·99 |
| 6 | 21 17 54·21 | 16 34 44·7 | ·0168900 | 20 16·3 | 311 46 25·2 | 0 49 51·2 | ·99 |
| 7 | 21 18 13·00 | 16 33 27·6 | ·0162837 | 20 12·7 | 311 48 16·4 | 0 49 55·8 | ·99 |
| 8 | 21 18 31·50 | 16 32 11·7 | ·0156711 | 20 9·0 | 311 50 7·6 | 0 50 0·4 | ·99 |
| 9 | 21 18 49·70 | 16 30 57·2 | ·0150523 | 20 5·4 | 311 51 58·9 | 0 50 4·9 | ·99 |
| 10 | 21 19 7·60 | 16 29 43·9 | ·0144276 | 20 1·8 | 311 53 50·1 | 0 50 9·5 | ·99 |
| 11 | 21 19 25·20 | 16 28 32·0 | ·0137971 | 19 58·1 | 311 55 41·3 | 0 50 14·0 | ·99 |
| 12 | 21 19 42·50 | 16 27 21·4 | ·0131609 | 19 54·5 | 311 57 32·5 | 0 50 18·6 | ·99 |
| 13 | 21 19 59·50 | 16 26 12·2 | ·0125191 | 19 50·8 | 311 59 23·7 | 0 50 23·1 | ·99 |
| 14 | 21 20 16·19 | 16 25 4·4 | ·0118719 | 19 47·2 | 312 1 15·0 | 0 50 27·7 | ·99 |
| 15 | 21 20 32·56 | 16 23 58·0 | ·0112194 | 19 43·5 | 312 3 6·2 | 0 50 32·2 | ·99 |
| 16 | 21 20 48·62 | 16 22 53·1 | ·0105617 | 19 39·8 | 312 4 57·4 | 0 50 36·8 | ·99 |
| 17 | 21 21 4·36 | 16 21 49·6 | ·0098991 | 19 36·2 | 312 6 48·7 | 0 50 41·3 | ·99 |
| 18 | 21 21 19·78 | 16 20 47·5 | ·0092317 | 19 32·5 | 312 8 39·9 | 0 50 45·9 | ·99 |
| 19 | 21 21 34·87 | 16 19 46·9 | ·0085595 | 19 28·8 | 312 10 31·2 | 0 50 50·4 | ·99 |
| 20 | 21 21 49·64 | 16 18 47·8 | ·0078829 | 19 25·1 | 312 12 22·5 | 0 50 54·9 | ·99 |
| 21 | 21 22 4·08 | 16 17 50·2 | ·0072019 | 19 21·4 | 312 14 13·8 | 0 50 59·5 | ·99 |
| 22 | 21 22 18·19 | 16 16 54·1 | ·0065166 | 19 17·7 | 312 16 5·0 | 0 51 4·0 | ·99 |
| 23 | 21 22 31·96 | 16 15 59·5 | ·0058271 | 19 14·0 | 312 17 56·3 | 0 51 8·6 | ·99 |
| 24 | 21 22 45·40 | 16 15 6·5 | ·0051337 | 19 10·3 | 312 19 47·6 | 0 51 13·1 | ·99 |
| 25 | 21 22 58·51 | 16 14 15·0 | ·0044364 | 19 6·6 | 312 21 38·9 | 0 51 17·7 | ·99 |
| 26 | 21 23 11·28 | 16 13 25·1 | ·0037353 | 19 2·9 | 312 23 30·3 | 0 51 22·2 | ·99 |
| 27 | 21 23 23·70 | 16 12 36·8 | ·0030306 | 18 59·1 | 312 25 21·6 | 0 51 26·7 | ·99 |
| 28 | 21 23 35·77 | 16 11 50·2 | ·0023225 | 18 55·4 | 312 27 12·9 | 0 51 31·3 | ·99 |
| 29 | 21 23 47·50 | 16 11 5·1 | ·0016112 | 18 51·6 | 312 29 4·2 | 0 51 35·8 | ·99 |
| 30 | 21 23 58·87 | 16 10 21·8 | ·0008968 | 18 47·9 | 312 30 55·6 | 0 51 40·4 | ·99 |
| 31 | 21 24 9·8 | ·1 | 1·0001795 | 18 44·1 | 312 32 46·9 | S. 0 51 44·9 | 0·99 |

# APRIL, 1845.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 21 16 33 ·36 | + 0 ·83 | 0 ·54 | S. 16 40 17 ·4 | + 3 ·4 | 7 ·2 | 0 ·8 |
| 2 | 21 16 53 ·26 | 0 ·82 | 0 ·54 | 16 38 55 ·4 | 3 ·4 | 7 ·2 | 0 ·8 |
| 3 | 21 17 12 ·89 | 0 ·81 | 0 ·54 | 16 37 34 ·6 | 3 ·3 | 7 ·2 | 0 ·8 |
| 4 | 21 17 32 ·24 | 0 ·80 | 0 ·54 | 16 36 15 ·0 | 3 ·3 | 7 ·2 | 0 ·8 |
| 5 | 21 17 51 ·31 | 0 ·79 | 0 ·54 | 16 34 56 ·6 | 3 ·2 | 7 ·2 | 0 ·8 |
| 6 | 21 18 10 ·10 | 0 ·78 | 0 ·54 | 16 33 39 ·5 | 3 ·2 | 7 ·2 | 0 ·8 |
| 7 | 21 18 28 ·60 | 0 ·76 | 0 ·54 | 16 32 23 ·6 | 3 ·1 | 7 ·2 | 0 ·8 |
| 8 | 21 18 46 ·80 | 0 ·75 | 0 ·54 | 16 31 9 ·0 | 3 ·1 | 7 ·2 | 0 ·8 |
| 9 | 21 19 4 ·71 | 0 ·74 | 0 ·54 | 16 29 55 ·7 | 3 ·0 | 7 ·2 | 0 ·8 |
| 10 | 21 19 22 ·31 | 0 ·73 | 0 ·55 | 16 28 43 ·8 | 3 ·0 | 7 ·3 | 0 ·8 |
| 11 | 21 19 39 ·62 | 0 ·72 | 0 ·55 | 16 27 33 ·1 | 2 ·9 | 7 ·3 | 0 ·8 |
| 12 | 21 19 56 ·63 | 0 ·70 | 0 ·55 | 16 26 23 ·9 | 2 ·9 | 7 ·3 | 0 ·8 |
| 13 | 21 20 13 ·32 | 0 ·69 | 0 ·55 | 16 25 16 ·0 | 2 ·8 | 7 ·3 | 0 ·8 |
| 14 | 21 20 29 ·71 | 0 ·68 | 0 ·55 | 16 24 9 ·6 | 2 ·7 | 7 ·3 | 0 ·8 |
| 15 | 21 20 45 ·78 | 0 ·66 | 0 ·55 | 16 23 4 ·5 | 2 ·7 | 7 ·3 | 0 ·8 |
| 16 | 21 21 1 ·54 | 0 ·65 | 0 ·55 | 16 22 0 ·9 | 2 ·6 | 7 ·3 | 0 ·8 |
| 17 | 21 21 16 ·98 | 0 ·64 | 0 ·55 | 16 20 58 ·7 | 2 ·6 | 7 ·3 | 0 ·8 |
| 18 | 21 21 32 ·09 | 0 ·62 | 0 ·55 | 16 19 58 ·0 | 2 ·5 | 7 ·3 | 0 ·8 |
| 19 | 21 21 46 ·88 | 0 ·61 | 0 ·55 | 16 18 58 ·8 | 2 ·4 | 7 ·4 | 0 ·8 |
| 20 | 21 22 1 ·35 | 0 ·60 | 0 ·55 | 16 18 1 ·0 | 2 ·4 | 7 ·4 | 0 ·8 |
| 21 | 21 22 15 ·48 | 0 ·58 | 0 ·55 | 16 17 4 ·8 | 2 ·3 | 7 ·4 | 0 ·8 |
| 22 | 21 22 29 ·29 | 0 ·57 | 0 ·55 | 16 16 10 ·0 | 2 ·3 | 7 ·4 | 0 ·8 |
| 23 | 21 22 42 ·76 | 0 ·55 | 0 ·55 | 16 15 16 ·8 | 2 ·2 | 7 ·4 | 0 ·8 |
| 24 | 21 22 55 ·90 | 0 ·54 | 0 ·55 | 16 14 25 ·2 | 2 ·1 | 7 ·4 | 0 ·8 |
| 25 | 21 23 8 ·70 | 0 ·53 | 0 ·55 | 16 13 35 ·1 | 2 ·1 | 7 ·4 | 0 ·9 |
| 26 | 21 23 21 ·17 | 0 ·51 | 0 ·56 | 16 12 46 ·6 | 2 ·0 | 7 ·5 | 0 ·9 |
| 27 | 21 23 33 ·28 | 0 ·50 | 0 ·56 | 16 11 59 ·8 | 1 ·9 | 7 ·5 | 0 ·9 |
| 28 | 21 23 45 ·04 | 0 ·48 | 0 ·56 | 16 11 14 ·5 | 1 ·9 | 7 ·5 | 0 ·9 |
| 29 | 21 23 56 ·45 | 0 ·47 | 0 ·56 | 16 10 30 ·9 | 1 ·8 | 7 ·5 | 0 ·9 |
| 30 | 21 24 7 ·52 | 0 ·45 | 0 ·56 | 16 9 49 ·0 | 1 ·7 | 7 ·5 | 0 ·9 |
| 31 | 21 24 18 ·22 | + 0 ·44 | 0 ·56 | S. 16 9 8 ·8 | + 1 ·6 | 7 ·5 | 0 ·9 |

# MAY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 24 9·89 | S. 16 9 40·1 | 1·0001795 | 18 44·1 | 312 32 46·9 | S. 0 51 44·9 | 0·99 |
| 2 | 21 24 20·54 | 16 9 0·1 | 0·9994594 | 18 40·4 | 312 34 38·2 | 0 51 49·5 | ·99 |
| 3 | 21 24 30·84 | 16 8 21·9 | ·9987367 | 18 36·6 | 312 36 29·6 | 0 51 54·0 | ·99 |
| 4 | 21 24 40·77 | 16 7 45·4 | ·9980116 | 18 32·8 | 312 38 20·9 | 0 51 58·5 | ·99 |
| 5 | 21 24 50·33 | 16 7 10·6 | ·9972844 | 18 29·1 | 312 40 12·3 | 0 52 3·1 | ·99 |
| 6 | 21 24 59·52 | 16 6 37·5 | ·9965552 | 18 25·3 | 312 42 3·7 | 0 52 7·6 | ·99 |
| 7 | 21 25 8·35 | 16 6 6·2 | ·9958243 | 18 21·5 | 312 43 55·1 | 0 52 12·1 | ·99 |
| 8 | 21 25 16·81 | 16 5 36·6 | ·9950918 | 18 17·7 | 312 45 46·4 | 0 52 16·7 | ·99 |
| 9 | 21 25 24·89 | 16 5 8·8 | ·9943578 | 18 13·9 | 312 47 37·8 | 0 52 21·2 | ·99 |
| 10 | 21 25 32·60 | 16 4 42·8 | ·9936227 | 18 10·1 | 312 49 29·2 | 0 52 25·7 | ·99 |
| 11 | 21 25 39·93 | 16 4 18·6 | ·9928866 | 18 6·3 | 312 51 20·6 | 0 52 30·3 | ·99 |
| 12 | 21 25 46·89 | 16 3 56·1 | ·9921498 | 18 2·4 | 312 53 12·0 | 0 52 34·8 | ·99 |
| 13 | 21 25 53·47 | 16 3 35·5 | ·9914123 | 17 58·6 | 312 55 3·4 | 0 52 39·3 | ·99 |
| 14 | 21 25 59·67 | 16 3 16·7 | ·9906745 | 17 54·8 | 312 56 54·8 | 0 52 43·9 | ·99 |
| 15 | 21 26 5·49 | 16 2 59·7 | ·9899364 | 17 50·9 | 312 58 46·3 | 0 52 48·4 | ·99 |
| 16 | 21 26 10·93 | 16 2 44·5 | ·9891984 | 17 47·1 | 313 0 37·7 | 0 52 52·9 | ·99 |
| 17 | 21 26 15·99 | 16 2 31·1 | ·9884606 | 17 43·2 | 313 2 29·1 | 0 52 57·4 | ·99 |
| 18 | 21 26 20·66 | 16 2 19·5 | ·9877231 | 17 39·4 | 313 4 20·6 | 0 53 2·0 | ·99 |
| 19 | 21 26 24·95 | 16 2 9·8 | ·9869863 | 17 35·5 | 313 6 12·0 | 0 53 6·5 | ·99 |
| 20 | 21 26 28·86 | 16 2 1·9 | ·9862502 | 17 31·6 | 313 8 3·5 | 0 53 11·0 | ·99 |
| 21 | 21 26 32·39 | 16 1 55·8 | ·9855152 | 17 27·8 | 313 9 54·9 | 0 53 15·5 | ·99 |
| 22 | 21 26 35·53 | 16 1 51·5 | ·9847813 | 17 23·9 | 313 11 46·4 | 0 53 20·1 | ·99 |
| 23 | 21 26 38·29 | 16 1 49·0 | ·9840488 | 17 20·0 | 313 13 37·9 | 0 53 24·6 | ·99 |
| 24 | 21 26 40·67 | 16 1 48·5 | ·9833180 | 17 16·1 | 313 15 29·3 | 0 53 29·1 | ·99 |
| 25 | 21 26 42·65 | 16 1 49·7 | ·9825889 | 17 12·2 | 313 17 20·8 | 0 53 33·6 | ·99 |
| 26 | 21 26 44·25 | 16 1 52·8 | ·9818617 | 17 8·3 | 313 19 12·3 | 0 53 38·1 | ·99 |
| 27 | 21 26 45·46 | 16 1 57·8 | ·9811367 | 17 4·4 | 313 21 3·8 | 0 53 42·6 | ·99 |
| 28 | 21 26 46·28 | 16 2 4·6 | ·9804142 | 17 0·4 | 313 22 55·3 | 0 53 47·2 | ·99 |
| 29 | 21 26 46·72 | 16 2 13·2 | ·9796944 | 16 56·5 | 313 24 46·8 | 0 53 51·7 | ·99 |
| 30 | 21 26 46·77 | 16 2 23·8 | ·9789774 | 16 52·6 | 313 26 38·3 | 0 53 56·3 | ·99 |
| 31 | 21 26 [illegible] | 16 2 36·1 | ·9782635 | 16 48·6 | 313 28 29·8 | 0 54 0·8 | ·99 |
| 32 | 21 [illegible] | 2 50·3 | 0·9775529 | 16 44·7 | 313 30 21·3 | S. 0 54 5·3 | 0·99 |

# MAY, 1845.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 21 24 18 ·22 | + 0 ·44 | 0 ·56 | S. 16 9 8 ·8 | + 1 ·6 | 7 ·5 | 0 ·9 |
| 2 | 21 24 28 ·58 | 0 ·42 | 0 ·56 | 16 8 30 ·2 | 1 ·6 | 7 ·5 | 0 ·9 |
| 3 | 21 24 38 ·57 | 0 ·41 | 0 ·56 | 16 7 53 ·4 | 1 ·5 | 7 ·5 | 0 ·9 |
| 4 | 21 24 48 ·19 | 0 ·39 | 0 ·57 | 16 7 18 ·3 | 1 ·4 | 7 ·6 | 0 ·9 |
| 5 | 21 24 57 ·44 | 0 ·38 | 0 ·57 | 16 6 44 ·9 | 1 ·4 | 7 ·6 | 0 ·9 |
| 6 | 21 25 6 ·33 | 0 ·36 | 0 ·57 | 16 6 13 ·3 | 1 ·3 | 7 ·6 | 0 ·9 |
| 7 | 21 25 14 ·85 | 0 ·35 | 0 ·57 | 16 5 43 ·4 | 1 ·2 | 7 ·6 | 0 ·9 |
| 8 | 21 25 23 ·00 | 0 ·33 | 0 ·57 | 16 5 15 ·3 | 1 ·1 | 7 ·6 | 0 ·9 |
| 9 | 21 25 30 ·78 | 0 ·32 | 0 ·57 | 16 4 48 ·9 | 1 ·1 | 7 ·6 | 0 ·9 |
| 10 | 21 25 38 ·19 | 0 ·30 | 0 ·57 | 16 4 24 ·3 | 1 ·0 | 7 ·6 | 0 ·9 |
| 11 | 21 25 45 ·21 | 0 ·28 | 0 ·58 | 16 4 1 ·5 | 0 ·9 | 7 ·7 | 0 ·9 |
| 12 | 21 25 51 ·87 | 0 ·27 | 0 ·58 | 16 3 40 ·4 | 0 ·8 | 7 ·7 | 0 ·9 |
| 13 | 21 25 58 ·15 | 0 ·25 | 0 ·58 | 16 3 21 ·2 | 0 ·8 | 7 ·7 | 0 ·9 |
| 14 | 21 26 4 ·05 | 0 ·24 | 0 ·58 | 16 3 3 ·8 | 0 ·7 | 7 ·7 | 0 ·9 |
| 15 | 21 26 9 ·57 | 0 ·22 | 0 ·58 | 16 2 48 ·2 | 0 ·6 | 7 ·7 | 0 ·9 |
| 16 | 21 26 14 ·71 | 0 ·21 | 0 ·58 | 16 2 34 ·4 | 0 ·5 | 7 ·7 | 0 ·9 |
| 17 | 21 26 19 ·48 | 0 ·19 | 0 ·58 | 16 2 22 ·4 | 0 ·5 | 7 ·7 | 0 ·9 |
| 18 | 21 26 23 ·86 | 0 ·17 | 0 ·58 | 16 2 12 ·2 | 0 ·4 | 7 ·8 | 0 ·9 |
| 19 | 21 26 27 ·86 | 0 ·16 | 0 ·58 | 16 2 3 ·8 | 0 ·3 | 7 ·8 | 0 ·9 |
| 20 | 21 26 31 ·48 | 0 ·14 | 0 ·58 | 16 1 57 ·2 | 0 ·2 | 7 ·8 | 0 ·9 |
| 21 | 21 26 34 ·72 | 0 ·13 | 0 ·58 | 16 1 52 ·4 | 0 ·2 | 7 ·8 | 0 ·9 |
| 22 | 21 26 37 ·58 | 0 ·11 | 0 ·58 | 16 1 49 ·5 | + 0 ·1 | 7 ·8 | 0 ·9 |
| 23 | 21 26 40 ·05 | 0 ·10 | 0 ·58 | 16 1 48 ·4 | 0 ·0 | 7 ·8 | 0 ·9 |
| 24 | 21 26 42 ·14 | 0 ·08 | 0 ·58 | 16 1 49 ·2 | — 0 ·1 | 7 ·8 | 0 ·9 |
| 25 | 21 26 43 ·84 | 0 ·06 | 0 ·59 | 16 1 51 ·8 | 0 ·1 | 7 ·9 | 0 ·9 |
| 26 | 21 26 45 ·16 | 0 ·05 | 0 ·59 | 16 1 56 ·2 | 0 ·2 | 7 ·9 | 0 ·9 |
| 27 | 21 26 46 ·09 | 0 ·03 | 0 ·59 | 16 2 2 ·4 | 0 ·3 | 7 ·9 | 0 ·9 |
| 28 | 21 26 46 ·63 | + 0 ·01 | 0 ·59 | 16 2 10 ·5 | 0 ·4 | 7 ·9 | 0 ·9 |
| 29 | 21 26 46 ·79 | 0 ·00 | 0 ·59 | 16 2 20 ·5 | 0 ·5 | 7 ·9 | 0 ·9 |
| 30 | 21 26 46 ·57 | — 0 ·02 | 0 ·59 | 16 2 32 ·2 | 0 ·5 | 7 ·9 | 0 ·9 |
| 31 | 21 26 45 ·96 | 0 ·03 | 0 ·59 | 16 2 45 ·8 | 0 ·6 | 7 ·9 | 0 ·9 |
| 32 | 21 26 44 ·97 | — 0 ·05 | 0 ·59 | S. 16 3 1 ·3 | — 0 ·7 | 8 ·0 | 0 ·9 |

# SATURN.

## JUNE, 1845.

### MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | |
|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ |
| 1 | 21 26 45·70 | S. 16 2 50·3 | 0·9775529 | 16 44·7 | 313 30 21·3 | S. 0 54 5·3 |
| 2 | 21 26 44·59 | 16 3 6·3 | ·9768458 | 16 40·7 | 313 32 12·9 | 0 54 9·8 |
| 3 | 21 26 43·09 | 16 3 24·1 | ·9761425 | 16 36·8 | 313 34 4·4 | 0 54 14·3 |
| 4 | 21 26 41·20 | 16 3 43·8 | ·9754433 | 16 32·8 | 313 35 55·9 | 0 54 18·9 |
| 5 | 21 26 38·93 | 16 4 5·2 | ·9747484 | 16 28·8 | 313 37 47·5 | 0 54 23·4 |
| 6 | 21 26 36·27 | 16 4 28·5 | ·9740581 | 16 24·9 | 313 39 39·0 | 0 54 27·9 |
| 7 | 21 26 33·23 | 16 4 53·5 | ·9733726 | 16 20·9 | 313 41 30·6 | 0 54 32·4 |
| 8 | 21 26 29·81 | 16 5 20·4 | ·9726922 | 16 16·9 | 313 43 22·1 | 0 54 36·9 |
| 9 | 21 26 26·01 | 16 5 48·9 | ·9720170 | 16 12·9 | 313 45 13·7 | 0 54 41·4 |
| 10 | 21 26 21·84 | 16 6 19·3 | ·9713473 | 16 8·9 | 313 47 5·3 | 0 54 45·9 |
| 11 | 21 26 17·29 | 16 6 51·3 | ·9706833 | 16 4·8 | 313 48 56·8 | 0 54 50·5 |
| 12 | 21 26 12·37 | 16 7 25·1 | ·9700252 | 16 0·8 | 313 50 48·4 | 0 54 55·0 |
| 13 | 21 26 7·09 | 16 8 0·6 | ·9693733 | 15 56·8 | 313 52 40·0 | 0 54 59·5 |
| 14 | 21 26 1·44 | 16 8 37·7 | ·9687278 | 15 52·8 | 313 54 31·6 | 0 55 4·0 |
| 15 | 21 25 55·42 | 16 9 16·5 | ·9680889 | 15 48·7 | 313 56 23·2 | 0 55 8·5 |
| 16 | 21 25 49·05 | 16 9 57·0 | ·9674568 | 15 44·7 | 313 58 14·8 | 0 55 13·0 |
| 17 | 21 25 42·32 | 16 10 39·1 | ·9668317 | 15 40·6 | 314 0 6·4 | 0 55 17·5 |
| 18 | 21 25 35·23 | 16 11 22·8 | ·9662138 | 15 36·6 | 314 1 58·0 | 0 55 22·0 |
| 19 | 21 25 27·80 | 16 12 8·1 | ·9656034 | 15 32·5 | 314 3 49·6 | 0 55 26·5 |
| 20 | 21 25 20·01 | 16 12 55·0 | ·9650007 | 15 28·5 | 314 5 41·2 | 0 55 31·0 |
| 21 | 21 25 11·88 | 16 13 43·4 | ·9644058 | 15 24·4 | 314 7 32·9 | 0 55 35·5 |
| 22 | 21 25 3·41 | 16 14 33·4 | ·9638190 | 15 20·3 | [illegible] 9 24·5 | 0 55 40·0 |
| 23 | 21 24 54·61 | 16 15 24·9 | ·9632406 | 15 16· | [illegible] 16·2 | 0 55 44·5 |
| 24 | 21 24 45·46 | 16 16 17·9 | ·9626706 | 15 [illegible] | [illegible] 13 7·8 | 0 5[illegible] |
| 25 | 21 24 35·98 | 16 17 12·4 | ·962109[illegible] | [illegible] | [illegible] | [illegible] |
| 26 | 21 24 26·18 | 16 18 8·3 | ·9615[illegible] | [illegible] | [illegible] | [illegible] |
| 27 | 21 24 16·05 | 16 19 5·7 | ·96[illegible] | [illegible] | [illegible] | [illegible] |
| 28 | 21 24 5·60 | 16 20 4·4 | [illegible] | [illegible] | [illegible] | [illegible] |
| 29 | 21 23 54·84 | 16 21 4·[illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 30 | 21 23 43·77 | 16 22 6[illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 31 | 21 23 32·39 | S. 16 2[illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

# JUNE, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 44 ·97 | — 0 ·05 | 0 ·59 | S. 16 3 1 ·3 | — 0 ·7 | 8 ·0 | 0 ·9 |
| 43 ·59 | 0 ·07 | 0 ·59 | 16 3 18 ·5 | 0 ·8 | 8 ·0 | 0 ·9 |
| 41 ·83 | 0 ·08 | 0 ·59 | 16 3 37 ·6 | 0 ·8 | 8 ·0 | 0 ·9 |
| 39 ·68 | 0 ·10 | 0 ·59 | 16 3 58 ·4 | 0 ·9 | 8 ·0 | 0 ·9 |
| 37 ·15 | 0 ·11 | 0 ·59 | 16 4 21 ·0 | 1 ·0 | 8 ·0 | 0 ·9 |
| 34 ·23 | 0 ·13 | 0 ·59 | 16 4 45 ·4 | 1 ·1 | 8 ·0 | 0 ·9 |
| 30 ·94 | 0 ·14 | 0 ·59 | 16 5 11 ·6 | 1 ·1 | 8 ·0 | 0 ·9 |
| 27 ·28 | 0 ·16 | 0 ·59 | 16 5 39 ·6 | 1 ·2 | 8 ·0 | 0 ·9 |
| 23 ·24 | 0 ·18 | 0 ·60 | 16 6 9 ·3 | 1 ·3 | 8 ·1 | 0 ·9 |
| 18 ·82 | 0 ·19 | 0 ·60 | 16 6 40 ·7 | 1 ·3 | 8 ·1 | 0 ·9 |
| 14 ·04 | 0 ·21 | 0 ·60 | 16 7 13 ·8 | 1 ·4 | 8 ·1 | 0 ·9 |
| 8 ·89 | 0 ·22 | 0 ·60 | 16 7 48 ·6 | 1 ·5 | 8 ·1 | 0 ·9 |
| 3 ·38 | 0 ·24 | 0 ·60 | 16 8 25 ·1 | 1 ·6 | 8 ·1 | 0 ·9 |
| 57 ·50 | 0 ·25 | 0 ·60 | 16 9 3 ·2 | 1 ·6 | 8 ·1 | 0 ·9 |
| 51 ·27 | 0 ·27 | 0 ·60 | 16 9 43 ·0 | 1 ·7 | 8 ·1 | 0 ·9 |
| 44 ·68 | 0 ·28 | 0 ·60 | 16 10 24 ·4 | 1 ·8 | 8 ·2 | 0 ·9 |
| 37 ·73 | 0 ·30 | 0 ·60 | 16 11 7 ·5 | 1 ·8 | 8 ·2 | 0 ·9 |
| 30 ·44 | 0 ·31 | 0 ·60 | 16 11 52 ·1 | 1 ·9 | 8 ·2 | 0 ·9 |
| 22 ·80 | 0 ·33 | 0 ·60 | 16 12 38 ·3 | 2 ·0 | 8 ·2 | 0 ·9 |
| 14 ·81 | 0 ·34 | 0 ·60 | 16 13 26 ·1 | 2 ·0 | 8 ·2 | 0 ·9 |
| 6 ·49 | 0 ·35 | 0 ·60 | 16 14 15 ·4 | 2 ·1 | 8 ·2 | 0 ·9 |
| 57 ·82 | 0 ·37 | 0 ·60 | 16 15 6 ·2 | 2 ·1 | 8 ·2 | 0 ·9 |
| 48 ·82 | 0 ·38 | 0 ·60 | 16 15 58 ·5 | 2 ·2 | 8 ·2 | 0 ·9 |
| 39 ·50 | 0 ·40 | 0 ·60 | 16 16 52 ·3 | 2 ·3 | 8 ·2 | 0 ·9 |
| 29 ·84 | 0 ·41 | 0 ·61 | 16 17 47 ·5 | 2 ·3 | 8 ·3 | 0 ·9 |
| 19 ·86 | 0 ·42 | 0 ·61 | 16 18 44 ·1 | 2 ·4 | 8 ·3 | 0 ·9 |
| 9 ·56 | 0 ·44 | 0 ·61 | 16 19 42 ·2 | 2 ·5 | 8 ·3 | 0 ·9 |
| 58 ·95 | 0 ·45 | 0 ·61 | 16 20 41 ·7 | 2 ·5 | 8 ·3 | 0 ·9 |
| 48 ·03 | 0 ·46 | 0 ·61 | 16 21 42 ·4 | 2 ·6 | 8 ·3 | 0 ·9 |
| 36 ·79 | 0 ·47 | 0 ·61 | 16 22 44 ·5 | 2 ·6 | 8 ·3 | 0 ·9 |
| 25 ·26 | — 0 ·49 | 0 ·61 | S. 16 23 47 ·9 | — 2 ·7 | 8 ·3 | 0 ·9 |

# JULY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 23 32·39 | S. 16 23 8·8 | 0·9589376 | 14 43·4 | 314 26 9·4 | S. 0 56 20·5 | 0·9 |
| 2 | 21 23 20·71 | 16 24 12·8 | ·9584436 | 14 39·3 | 314 28 1·1 | 0 56 25·0 | ·9 |
| 3 | 21 23 8·73 | 16 25 18·1 | ·9579602 | 14 35·1 | 314 29 52·8 | 0 56 29·4 | ·9 |
| 4 | 21 22 56·46 | 16 26 24·6 | ·9574875 | 14 31·0 | 314 31 44·5 | 0 56 33·9 | ·9 |
| 5 | 21 22 43·91 | 16 27 32·3 | ·9570257 | 14 26·9 | 314 33 36·1 | 0 56 38·4 | ·9 |
| 6 | 21 22 31·09 | 16 28 41·2 | ·9565750 | 14 22·7 | 314 35 27·8 | 0 56 42·9 | ·9 |
| 7 | 21 22 17·99 | 16 29 51·2 | ·9561357 | 14 18·6 | 314 37 19·5 | 0 56 47·4 | ·9 |
| 8 | 21 22 4·63 | 16 31 2·2 | ·9557079 | 14 14·4 | 314 39 11·2 | 0 56 51·9 | ·9 |
| 9 | 21 21 51·01 | 16 32 14·3 | ·9552917 | 14 10·3 | 314 41 2·9 | 0 56 56·4 | ·9 |
| 10 | 21 21 37·13 | 16 33 27·4 | ·9548874 | 14 6·1 | 314 42 54·7 | 0 57 0·9 | ·9 |
| 11 | 21 21 23·01 | 16 34 41·4 | ·9544951 | 14 1·9 | 314 44 46·4 | 0 57 5·3 | ·9 |
| 12 | 21 21 8·66 | 16 35 56·4 | ·9541150 | 13 57·8 | 314 46 38·1 | 0 57 9·8 | ·9 |
| 13 | 21 20 54·08 | 16 37 12·3 | ·9537472 | 13 53·6 | 314 48 29·8 | 0 57 14·3 | ·9 |
| 14 | 21 20 39·27 | 16 38 29·0 | ·9533918 | 13 49·4 | 314 50 21·5 | 0 57 18·8 | ·9 |
| 15 | 21 20 24·25 | 16 39 46·5 | ·9530490 | 13 45·2 | 314 52 13·3 | 0 57 23·3 | ·9 |
| 16 | 21 20 9·02 | 16 41 4·8 | ·9527190 | 13 41·0 | 314 54 5·0 | 0 57 27·7 | ·9 |
| 17 | 21 19 53·59 | 16 42 23·9 | ·9524018 | 13 36·9 | 314 55 56·8 | 0 57 32·2 | ·9 |
| 18 | 21 19 37·97 | 16 43 43·6 | ·9520975 | 13 32·7 | 314 57 48·5 | 0 57 36·7 | ·9 |
| 19 | 21 19 22·16 | 16 45 4·0 | ·9518063 | 13 28·5 | 314 59 40·2 | 0 57 41·2 | ·9 |
| 20 | 21 19 6·17 | 16 46 25·0 | ·9515284 | 13 24·3 | 315 1 32·0 | 0 57 45·7 | ·9 |
| 21 | 21 18 50·01 | 16 47 46·6 | ·9512638 | 13 20·1 | 315 3 23·7 | 0 57 50·1 | ·9 |
| 22 | 21 18 33·68 | 16 49 8·8 | ·9510127 | 13 15·9 | 315 5 15·5 | 0 57 54·6 | ·9 |
| 23 | 21 18 17·19 | 16 50 31·5 | ·9507752 | 13 11·6 | 315 7 7·2 | 0 57 59·1 | ·9 |
| 24 | 21 18 0·56 | 16 51 54·6 | ·9505514 | 13 7·4 | 315 8 59·0 | 0 58 3·6 | ·9 |
| 25 | 21 17 43·79 | 16 53 18·2 | ·9503414 | 13 3·2 | 315 10 50·7 | 0 58 8·0 | ·9 |
| 26 | 21 17 26·88 | 16 54 42·2 | ·9501454 | 12 59·0 | 315 12 42·5 | 0 58 12·5 | ·9 |
| 27 | 21 17 9·84 | 16 56 6·5 | ·9499634 | 12 54·8 | 315 14 34·3 | 0 58 17·0 | ·9 |
| 28 | 21 16 52·69 | 16 57 31·1 | ·9497956 | 12 50·6 | 315 16 26·0 | 0 58 21·5 | ·9 |
| 29 | 21 16 35·43 | 16 58 55·9 | ·9496419 | 12 46·4 | 315 18 17·8 | 0 58 25·9 | ·9 |
| 30 | 21 16 18·07 | 17 0 21·0 | ·9495026 | 12 42·1 | 315 20 9·6 | 0 58 30·4 | ·9 |
| 31 | 21 16 0·62 | 17 1 46·2 | ·9493776 | 12 37·9 | 315 22 1·4 | 0 58 34·9 | ·9 |
| *32* | *21 15 43·08* | S. 17 3 11·5 | 0·9492670 | 12 33·7 | 315 23 53·1 | S. 0 58 39·3 | 0·9 |

# JULY, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 21 23 25 ·26 | — 0 ·49 | 0 ·61 | S. 16 23 47 ·9 | — 2 ·7 | 8 ·3 | 0 ·9 |
| 21 23 13 ·43 | 0 ·50 | 0 ·61 | 16 24 52 ·5 | 2 ·7 | 8 ·3 | 0 ·9 |
| 21 23 1 ·31 | 0 ·51 | 0 ·61 | 16 25 58 ·4 | 2 ·8 | 8 ·3 | 0 ·9 |
| 21 22 48 ·91 | 0 ·52 | 0 ·62 | 16 27 5 ·4 | 2 ·8 | 8 ·3 | 0 ·9 |
| 21 22 36 ·23 | 0 ·53 | 0 ·62 | 16 28 13 ·6 | 2 ·9 | 8 ·3 | 0 ·9 |
| 21 22 23 ·28 | 0 ·55 | 0 ·62 | 16 29 23 ·0 | 2 ·9 | 8 ·3 | 0 ·9 |
| 21 22 10 ·06 | 0 ·56 | 0 ·62 | 16 30 33 ·4 | 3 ·0 | 8 ·3 | 0 ·9 |
| 21 21 56 ·58 | 0 ·57 | 0 ·62 | 16 31 44 ·8 | 3 ·0 | 8 ·3 | 1 ·0 |
| 21 21 42 ·84 | 0 ·58 | 0 ·62 | 16 32 57 ·3 | 3 ·0 | 8 ·3 | 1 ·0 |
| 21 21 28 ·86 | 0 ·59 | 0 ·62 | 16 34 10 ·8 | 3 ·1 | 8 ·3 | 1 ·0 |
| 21 21 14 ·65 | 0 ·60 | 0 ·62 | 16 35 25 ·2 | 3 ·1 | 8 ·3 | 1 ·0 |
| 21 21 0 ·20 | 0 ·61 | 0 ·62 | 16 36 40 ·4 | 3 ·2 | 8 ·3 | 1 ·0 |
| 21 20 45 ·53 | 0 ·62 | 0 ·62 | 16 37 56 ·5 | 3 ·2 | 8 ·3 | 1 ·0 |
| 21 20 30 ·65 | 0 ·63 | 0 ·62 | 16 39 13 ·5 | 3 ·2 | 8 ·3 | 1 ·0 |
| 21 20 15 ·55 | 0 ·63 | 0 ·62 | 16 40 31 ·3 | 3 ·3 | 8 ·3 | 1 ·0 |
| 21 20 0 ·25 | 0 ·64 | 0 ·62 | 16 41 49 ·8 | 3 ·3 | 8 ·3 | 1 ·0 |
| 21 19 44 ·75 | 0 ·65 | 0 ·63 | 16 43 9 ·0 | 3 ·3 | 8 ·4 | 1 ·0 |
| 21 19 29 ·07 | 0 ·66 | 0 ·63 | 16 44 28 ·9 | 3 ·3 | 8 ·4 | 1 ·0 |
| 21 19 13 ·20 | 0 ·66 | 0 ·63 | 16 45 49 ·4 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 18 57 ·16 | 0 ·67 | 0 ·63 | 16 47 10 ·5 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 18 40 ·95 | 0 ·68 | 0 ·63 | 16 48 32 ·2 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 18 24 ·59 | 0 ·69 | 0 ·63 | 16 49 54 ·4 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 18 8 ·07 | 0 ·69 | 0 ·63 | 16 51 17 ·1 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 17 51 ·41 | 0 ·70 | 0 ·63 | 16 52 40 ·3 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 17 34 ·61 | 0 ·70 | 0 ·63 | 16 54 3 ·8 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 17 17 ·68 | 0 ·71 | 0 ·63 | 16 55 27 ·7 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 17 0 ·63 | 0 ·71 | 0 ·63 | 16 56 52 ·0 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 16 43 ·47 | 0 ·72 | 0 ·63 | 16 58 16 ·5 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 16 26 ·20 | 0 ·72 | 0 ·63 | 16 59 41 ·2 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 16 8 ·84 | 0 ·73 | 0 ·63 | 17 1 6 ·1 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 15 51 ·40 | 0 ·73 | 0 ·63 | 17 2 31 ·1 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 15 33 ·87 | — 0 ·73 | 0 ·63 | S. 17 3 56 ·2 | — 3 ·5 | 8 ·4 | 1 ·0 |

# JULY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. Apparent Right Ascension. Noon. | Apparent Declination. Noon. | Log. of True Dist. from the Earth. Noon. | Meridian Passage. | Longitu[illegible] Noon |
|---|---|---|---|---|---|
| | h m s | ° ′ ″ | | h m | ° ′ |
| 1 | 21 23 32·39 | S. 16 23 8·8 | 0·9589376 | 14 43·4 | 314 26 |
| 2 | 21 23 20·71 | 16 24 12·8 | ·9584436 | 14 39·3 | 314 28 |
| 3 | 21 23 8·73 | 16 25 18·1 | ·9579602 | 14 35·1 | 314 29 |
| 4 | 21 22 56·46 | 16 26 24·6 | ·9574875 | 14 31·0 | 314 31 |
| 5 | 21 22 43·91 | 16 27 32·3 | ·9570257 | 14 26·9 | 314 33 |
| 6 | 21 22 31·09 | 16 28 41·2 | ·9565750 | 14 22·7 | 314 35 |
| 7 | 21 22 17·98 | 16 29 51·2 | ·9561357 | 14 18·6 | 314 37 |
| 8 | 21 22 4·63 | 16 31 2·2 | ·9557079 | 14 14·4 | 314 39 |
| 9 | 21 21 51·01 | 16 32 14·3 | ·9552917 | 14 10·3 | 314 41 |
| 10 | 21 21 37·13 | 16 33 27·4 | ·9548874 | 14 6·1 | 314 42 5 |
| 11 | 21 21 23·02 | 16 34 41·4 | ·9544951 | 14 1·9 | 314 44 4 |
| 12 | 21 21 8·66 | 16 35 56·4 | ·9541150 | 13 57·8 | 314 46 3 |
| 13 | 21 20 54·08 | 16 37 12·3 | ·9537472 | 13 53·6 | 314 48 2 |
| 14 | 21 20 39·27 | 16 38 29·0 | ·9533918 | 13 49·4 | 314 50 2 |
| 15 | 21 20 24·23 | 16 39 46·5 | ·9530490 | 13 45·2 | 314 52 1 |
| 16 | 21 20 9·02 | 16 41 4·8 | ·9527190 | 13 41·0 | 314 54 |
| 17 | 21 19 53·39 | 16 42 23·9 | ·9524018 | 13 36·9 | 314 55 5 |
| 18 | 21 19 37·97 | 16 43 43·6 | ·9520975 | 13 32·7 | 314 57 4 |
| 19 | 21 19 22·16 | 16 45 4·0 | ·9518063 | 13 28·5 | 314 59 4 |
| 20 | 21 19 6·17 | 16 46 25·0 | ·9515284 | 13 24·3 | 315 1 3 |
| 21 | 21 18 50·01 | 16 47 46·6 | ·9512638 | 13 20·1 | 315 3 2 |
| 22 | 21 18 33·68 | 16 49 8·8 | ·9510127 | 13 15·9 | 315 5 1 |
| 23 | 21 18 17·19 | 16 50 31·5 | ·9507752 | 13 11·6 | 315 7 |
| 24 | 21 18 0·36 | 16 51 54·6 | ·9505514 | 13 7·4 | 315 8 5 |
| 25 | 21 17 43·79 | 16 53 18·2 | [illegible] | 13 3·2 | 315 10 5 |
| 26 | 21 17 26·88 | 16 54 42·2 | [illegible] | 12 59·0 | 315 12 4 |
| 27 | 21 17 9·84 | 16 56 6·3 | [illegible] | 12 54·8 | 315 14 3 |
| 28 | 21 16 52·69 | 16 57 31 | [illegible] | 12 50·6 | 315 1 |
| 29 | 21 16 35·43 | 16 58 [illegible] | [illegible] | 12 46·4 | [illegible] |
| 30 | 21 16 18·07 | 17 [illegible] | [illegible] | [illegible] | [illegible] |
| 31 | 21 16 0·62 | 17 [illegible] | [illegible] | [illegible] | [illegible] |
| 32 | 21 15 43·08 | S. [illegible] | [illegible] | [illegible] | [illegible] |

# JULY, 1845.

At Transit over the Meridian of Greenwich.

| Apparent Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | Apparent Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 23 25 ·26 | — 0 ·49 | 0 ·61 | S. 16 23 47 ·9 | — 2 ·7 | 8 ·3 | 0 ·9 |
| 23 13 ·43 | 0 ·50 | 0 ·61 | 16 24 52 ·5 | 2 ·7 | 8 ·3 | 0 ·9 |
| 23 1 ·31 | 0 ·51 | 0 ·61 | 16 25 58 ·4 | 2 ·8 | 8 ·3 | 0 ·9 |
| 22 48 ·91 | 0 ·52 | 0 ·62 | 16 27 5 ·4 | 2 ·8 | 8 ·3 | 0 ·9 |
| 22 36 ·23 | 0 ·53 | 0 ·62 | 16 28 13 ·6 | 2 ·9 | 8 ·3 | 0 ·9 |
| 22 23 ·28 | 0 ·55 | 0 ·62 | 16 29 23 ·0 | 2 ·9 | 8 ·3 | 0 ·9 |
| 22 10 ·06 | 0 ·56 | 0 ·62 | 16 30 33 ·4 | 3 ·0 | 8 ·3 | 0 ·9 |
| 21 56 ·58 | 0 ·57 | 0 ·62 | 16 31 44 ·8 | 3 ·0 | 8 ·3 | 1 ·0 |
| 21 42 ·84 | 0 ·58 | 0 ·62 | 16 32 57 ·3 | 3 ·0 | 8 ·3 | 1 ·0 |
| 21 28 ·86 | 0 ·59 | 0 ·62 | 16 34 10 ·8 | 3 ·1 | 8 ·3 | 1 ·0 |
| 21 14 ·65 | 0 ·60 | 0 ·62 | 16 35 25 ·2 | 3 ·1 | 8 ·3 | 1 ·0 |
| 21 0 ·20 | 0 ·61 | 0 ·62 | 16 36 40 ·4 | 3 ·2 | 8 ·3 | 1 ·0 |
| 20 45 ·53 | 0 ·62 | 0 ·62 | 16 37 56 ·5 | 3 ·2 | 8 ·3 | 1 ·0 |
| 20 30 ·65 | 0 ·63 | 0 ·62 | 16 39 13 ·5 | 3 ·2 | 8 ·3 | 1 ·0 |
| 20 15 ·55 | 0 ·63 | 0 ·62 | 16 40 31 ·3 | 3 ·3 | 8 ·3 | 1 ·0 |
| 20 0 ·25 | 0 ·64 | 0 ·62 | 16 41 49 ·8 | 3 ·3 | 8 ·3 | 1 ·0 |
| 19 44 ·75 | 0 ·65 | 0 ·63 | 16 43 9 ·0 | 3 ·3 | 8 ·4 | 1 ·0 |
| 19 29 ·07 | 0 ·66 | 0 ·63 | 16 44 28 ·9 | 3 ·3 | 8 ·4 | 1 ·0 |
| 19 13 ·20 | 0 ·66 | 0 ·63 | 16 45 49 ·4 | 3 ·4 | 8 ·4 | 1 ·0 |
| 18 57 ·16 | 0 ·67 | 0 ·63 | 16 47 10 ·5 | 3 ·4 | 8 ·4 | 1 ·0 |
| 18 40 ·95 | 0 ·68 | 0 ·63 | 16 48 32 ·2 | 3 ·4 | 8 ·4 | 1 ·0 |
| 18 24 ·59 | 0 ·69 | 0 ·63 | 16 49 54 ·4 | 3 ·4 | 8 ·4 | 1 ·0 |
| 18 8 ·07 | 0 ·69 | 0 ·63 | 16 51 17 ·1 | 3 ·5 | 8 ·4 | 1 ·0 |
| 17 51 ·41 | 0 ·70 | 0 ·63 | 16 52 40 ·3 | 3 ·5 | 8 ·4 | 1 ·0 |
| 17 34 ·61 | 0 ·70 | 0 ·63 | 16 54 3 ·8 | 3 ·5 | 8 ·4 | 1 ·0 |
| 17 17 ·68 | 0 ·71 | 0 ·63 | 16 55 27 ·7 | 3 ·5 | 8 ·4 | 1 ·0 |
| 17 0 ·63 | 0 ·71 | 0 ·63 | 16 56 52 ·0 | 3 ·5 | 8 ·4 | 1 ·0 |
| ·47 | 0 ·72 | 0 ·63 | 16 58 16 ·5 | 3 ·5 | 8 ·4 | 1 ·0 |
| 20 | 0 ·72 | 0 ·63 | 16 59 41 ·2 | 3 ·5 | 8 ·4 | 1 ·0 |
| 4 | 0 ·73 | 0 ·63 | 17 1 6 ·1 | 3 ·5 | 8 ·4 | 1 ·0 |
| | 0 ·73 | 0 ·63 | 17 2 31 ·1 | 3 ·5 | 8 ·4 | 1 ·0 |
| | | | 3 56 ·2 | — 3 ·5 | 8 ·4 | 1 ·0 |

# AUGUST, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 15 43·08 | S. 17 3 11·5 | 0·9492670 | 12 33·7 | 315 23 53·1 | S. 0 58 39·3 | 0·99 |
| 2 | 21 15 25·47 | 17 4 36·9 | ·9491710 | 12 29·5 | 315 25 44·9 | 0 58 43·8 | ·99 |
| 3 | 21 15 7·80 | 17 6 2·4 | ·9490896 | 12 25·2 | 315 27 36·7 | 0 58 48·3 | ·99 |
| 4 | 21 14 50·08 | 17 7 27·8 | ·9490228 | 12 21·0 | 315 29 28·5 | 0 58 52·7 | ·99 |
| 5 | 21 14 32·32 | 17 8 53·2 | ·9489706 | 12 16·8 | 315 31 20·3 | 0 58 57·2 | ·99 |
| 6 | 21 14 14·52 | 17 10 18·5 | ·9489332 | 12 12·6 | 315 33 12·1 | 0 59 1·7 | ·99 |
| 7 | 21 13 56·71 | 17 11 43·7 | ·9489106 | 12 8·4 | 315 35 3·9 | 0 59 6·1 | ·99 |
| 8 | 21 13 38·87 | 17 13 8·7 | ·9489027 | 12 4·1 | 315 36 55·7 | 0 59 10·6 | ·99 |
| 9 | 21 13 21·03 | 17 14 33·5 | ·9489094 | 11 59·9 | 315 38 47·5 | 0 59 15·0 | ·99 |
| 10 | 21 13 3·20 | 17 15 57·9 | ·9489309 | 11 55·7 | 315 40 39·4 | 0 59 19·5 | ·99 |
| 11 | 21 12 45·38 | 17 17 22·1 | ·9489670 | 11 51·4 | 315 42 31·2 | 0 59 24·0 | ·99 |
| 12 | 21 12 27·59 | 17 18 45·8 | ·9490177 | 11 47·2 | 315 44 23·0 | 0 59 28·4 | ·99 |
| 13 | 21 12 9·82 | 17 20 9·2 | ·9490831 | 11 43·0 | 315 46 14·8 | 0 59 32·9 | ·99 |
| 14 | 21 11 52·10 | 17 21 32·1 | ·9491629 | 11 38·7 | 315 48 6·7 | 0 59 37·3 | ·99 |
| 15 | 21 11 34·43 | 17 22 54·5 | ·9492573 | 11 34·5 | 315 49 58·5 | 0 59 41·8 | ·99 |
| 16 | 21 11 16·82 | 17 24 16·4 | ·9493661 | 11 30·3 | 315 51 50·4 | 0 59 46·2 | ·99 |
| 17 | 21 10 59·27 | 17 25 37·8 | ·9494893 | 11 26·1 | 315 53 42·2 | 0 59 50·7 | ·99 |
| 18 | 21 10 41·80 | 17 26 58·6 | ·9496268 | 11 21·9 | 315 55 34·0 | 0 59 55·2 | ·99 |
| 19 | 21 10 24·41 | 17 28 18·9 | ·9497785 | 11 17·6 | 315 57 25·9 | 0 59 59·6 | ·99 |
| 20 | 21 10 7·12 | 17 29 38·4 | ·9499445 | 11 13·4 | 315 59 17·8 | 1 0 4·1 | ·99 |
| 21 | 21 9 49·94 | 17 30 57·3 | ·9501247 | 11 9·2 | 316 1 9·6 | 1 0 8·5 | ·99 |
| 22 | 21 9 32·86 | 17 32 15·5 | ·9503190 | 11 5·0 | 316 3 1·5 | 1 0 13·0 | ·99 |
| 23 | 21 9 15·90 | 17 33 32·9 | ·9505273 | 11 0·8 | 316 4 53·4 | 1 0 17·4 | ·99 |
| 24 | 21 8 59·07 | 17 34 49·5 | ·9507496 | 10 56·6 | 316 6 45·2 | 1 0 21·9 | ·99 |
| 25 | 21 8 42·38 | 17 36 5·2 | ·9509858 | 10 52·4 | 316 8 37·1 | 1 0 26·3 | ·99 |
| 26 | 21 8 25·83 | 17 37 20·1 | ·9512358 | 10 48·2 | 316 10 29·0 | 1 0 30·7 | ·99 |
| 27 | 21 8 9·44 | 17 38 34·0 | ·9514996 | 10 44·0 | 316 12 20·9 | 1 0 35·2 | ·99 |
| 28 | 21 7 53·21 | 17 39 47·0 | ·9517769 | 10 39·8 | 316 14 12·8 | 1 0 39·6 | ·99 |
| 29 | 21 7 37·15 | 17 40 59·0 | ·9520678 | 10 35·6 | 316 16 4·7 | 1 0 44·1 | ·99 |
| 30 | 21 7 21·27 | 17 42 10·0 | ·9523721 | 10 31·4 | 316 17 56·6 | 1 0 48·5 | ·99 |
| 31 | 21 7 5·58 | 17 43 20·0 | ·9526896 | 10 27·2 | 316 19 48·5 | 1 0 53·0 | ·99 |
| 32 | 21 6 50·09 | S. 17 44 28·8 | 0·9530202 | 10 23·0 | 316 21 40·4 | S. 1 0 57·4 | 0·99 |

# AUGUST, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 21 15 33 ·87 | — 0 ·73 | 0 ·63 | S. 17 3 56 ·2 | — 3 ·5 | 8 ·4 | 1 ·0 |
| 21 15 16 ·28 | 0 ·73 | 0 ·63 | 17 5 21 ·4 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 14 58 ·64 | 0 ·74 | 0 ·63 | 17 6 46 ·6 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 14 40 ·95 | 0 ·74 | 0 ·63 | 17 8 11 ·8 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 14 23 ·23 | 0 ·74 | 0 ·63 | 17 9 36 ·9 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 14 5 ·47 | 0 ·74 | 0 ·63 | 17 11 1 ·9 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 13 47 ·69 | 0 ·74 | 0 ·63 | 17 12 26 ·7 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 13 29 ·90 | 0 ·74 | 0 ·63 | 17 13 51 ·3 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 13 12 ·11 | 0 ·74 | 0 ·63 | 17 15 15 ·7 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 12 54 ·34 | 0 ·74 | 0 ·63 | 17 16 39 ·8 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 12 36 ·59 | 0 ·74 | 0 ·63 | 17 18 3 ·6 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 12 18 ·86 | 0 ·74 | 0 ·63 | 17 19 26 ·9 | 3 ·5 | 8 ·4 | 1 ·0 |
| 21 12 1 ·16 | 0 ·74 | 0 ·63 | 17 20 49 ·7 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 11 43 ·51 | 0 ·73 | 0 ·63 | 17 22 12 ·2 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 11 25 ·92 | 0 ·73 | 0 ·63 | 17 23 34 ·1 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 11 8 ·39 | 0 ·73 | 0 ·63 | 17 24 55 ·5 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 10 50 ·94 | 0 ·73 | 0 ·63 | 17 26 16 ·4 | 3 ·4 | 8 ·4 | 1 ·0 |
| 21 10 33 ·56 | 0 ·72 | 0 ·63 | 17 27 36 ·7 | 3 ·3 | 8 ·4 | 1 ·0 |
| 21 10 16 ·27 | 0 ·72 | 0 ·63 | 17 28 56 ·4 | 3 ·3 | 8 ·4 | 1 ·0 |
| 21 9 59 ·07 | 0 ·71 | 0 ·64 | 17 30 15 ·4 | 3 ·3 | 8 ·4 | 1 ·0 |
| 21 9 41 ·99 | 0 ·71 | 0 ·64 | 17 31 33 ·7 | 3 ·2 | 8 ·4 | 1 ·0 |
| 21 9 25 ·01 | 0 ·70 | 0 ·64 | 17 32 51 ·3 | 3 ·2 | 8 ·4 | 1 ·0 |
| 21 9 8 ·16 | 0 ·70 | 0 ·64 | 17 34 8 ·1 | 3 ·2 | 8 ·4 | 1 ·0 |
| 21 8 51 ·44 | 0 ·69 | 0 ·64 | 17 35 24 ·1 | 3 ·1 | 8 ·4 | 1 ·0 |
| 21 8 34 ·86 | 0 ·69 | 0 ·64 | 17 36 39 ·2 | 3 ·1 | 8 ·4 | 1 ·0 |
| 21 8 18 ·43 | 0 ·68 | 0 ·64 | 17 37 53 ·5 | 3 ·1 | 8 ·4 | 1 ·0 |
| 21 8 2 ·16 | 0 ·67 | 0 ·64 | 17 39 6 ·8 | 3 ·0 | 8 ·4 | 1 ·0 |
| 21 7 46 ·06 | 0 ·67 | 0 ·64 | 17 40 19 ·1 | 3 ·0 | 8 ·4 | 1 ·0 |
| 21 7 30 ·12 | 0 ·66 | 0 ·64 | 17 41 30 ·4 | 3 ·0 | 8 ·4 | 1 ·0 |
| 21 7 14 ·37 | 0 ·65 | 0 ·63 | 17 42 40 ·8 | 2 ·9 | 8 ·3 | 1 ·0 |
| 21 6 58 ·81 | 0 ·64 | 0 ·63 | 17 43 50 ·1 | 2 ·9 | 8 ·3 | 1 ·0 |
| 21 6 43 ·45 | — 0 ·64 | 0 ·63 | S. 17 44 58 ·3 | — 2 ·8 | 8 ·3 | 1 ·0 |

# SEPTEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *N* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 6 50·09 | S. 17 44 28·8 | 0·9530202 | 10 23·0 | 316 21 40·4 | S. 1 0 57·4 | 0·99 |
| 2 | 21 6 34·81 | 17 45 36·6 | ·9533638 | 10 18·8 | 316 23 32·3 | 1 1 1·8 | ·99 |
| 3 | 21 6 19·74 | 17 46 43·2 | ·9537201 | 10 14·7 | 316 25 24·2 | 1 1 6·3 | ·99 |
| 4 | 21 6 4·89 | 17 47 48·6 | ·9540891 | 10 10·5 | 316 27 16·1 | 1 1 10·7 | ·99 |
| 5 | 21 5 50·28 | 17 48 52·8 | ·9544706 | 10 6·3 | 316 29 8·0 | 1 1 15·2 | ·99 |
| 6 | 21 5 35·91 | 17 49 55·8 | ·9548643 | 10 2·1 | 316 31 0·0 | 1 1 19·6 | ·99 |
| 7 | 21 5 21·79 | 17 50 57·5 | ·9552701 | 9 58·0 | 316 32 51·9 | 1 1 24·0 | ·99 |
| 8 | 21 5 7·93 | 17 51 57·9 | ·9556878 | 9 53·8 | 316 34 43·8 | 1 1 28·5 | ·99 |
| 9 | 21 4 54·33 | 17 52 57·0 | ·9561173 | 9 49·6 | 316 36 35·8 | 1 1 32·9 | ·99 |
| 10 | 21 4 40·99 | 17 53 54·8 | ·9565583 | 9 45·5 | 316 38 27·7 | 1 1 37·3 | ·99 |
| 11 | 21 4 27·93 | 17 54 51·3 | ·9570104 | 9 41·3 | 316 40 19·7 | 1 1 41·8 | ·99 |
| 12 | 21 4 15·16 | 17 55 46·3 | ·9574737 | 9 37·2 | 316 42 11·6 | 1 1 46·2 | ·99 |
| 13 | 21 4 2·67 | 17 56 40·0 | ·9579480 | 9 33·1 | 316 44 3·6 | 1 1 50·6 | ·99 |
| 14 | 21 3 50·47 | 17 57 32·3 | ·9584332 | 9 28·9 | 316 45 55·6 | 1 1 55·0 | ·99 |
| 15 | 21 3 38·57 | 17 58 23·1 | ·9589290 | 9 24·8 | 316 47 47·5 | 1 1 59·5 | ·99 |
| 16 | 21 3 26·97 | 17 59 12·5 | ·9594352 | 9 20·7 | 316 49 39·5 | 1 2 3·9 | ·99 |
| 17 | 21 3 15·68 | 18 0 0·4 | ·9599514 | 9 16·6 | 316 51 31·5 | 1 2 8·3 | ·99 |
| 18 | 21 3 4·71 | 18 0 46·8 | ·9604774 | 9 12·5 | 316 53 23·4 | 1 2 12·8 | ·99 |
| 19 | 21 2 54·06 | 18 1 31·7 | ·9610132 | 9 8·3 | 316 55 15·4 | 1 2 17·2 | ·99 |
| 20 | 21 2 43·73 | 18 2 15·1 | ·9615585 | 9 4·2 | 316 57 7·4 | 1 2 21·6 | ·99 |
| 21 | 21 2 33·74 | 18 2 56·9 | ·9621132 | 9 0·2 | 316 58 59·4 | 1 2 26·0 | ·99 |
| 22 | 21 2 24·08 | 18 3 37·2 | ·9626770 | 8 56·1 | 317 0 51·4 | 1 2 30·4 | ·99 |
| 23 | 21 2 14·76 | 18 4 15·9 | ·9632498 | 8 52·0 | 317 2 43·4 | 1 2 34·9 | ·99 |
| 24 | 21 2 5·80 | 18 4 53·1 | ·9638312 | 8 47·9 | 317 4 35·4 | 1 2 39·3 | ·99 |
| 25 | 21 1 57·18 | 18 5 28·7 | ·9644212 | 8 43·8 | 317 6 27·4 | 1 2 43·7 | ·99 |
| 26 | 21 1 48·92 | 18 6 2·6 | ·9650194 | 8 39·8 | 317 8 19·5 | 1 2 48·1 | ·99 |
| 27 | 21 1 41·02 | 18 6 34·9 | ·9656257 | 8 35·7 | 317 10 11·5 | 1 2 52·5 | ·99 |
| 28 | 21 1 33·49 | 18 7 5·5 | ·9662398 | 8 31·7 | 317 12 3·5 | 1 2 57·0 | ·99 |
| 29 | 21 1 26·33 | 18 7 34·4 | ·9668615 | 8 27·6 | 317 13 55·6 | 1 3 1·4 | ·99 |
| 30 | 21 1 19·54 | 18 8 1·7 | ·9674906 | 8 23·6 | 317 15 47·6 | 1 3 5·8 | ·99 |
| 31 | 21 1 13·14 | S. 18 8 27·3 | 0·9681267 | 8 19·5 | 317 17 39·6 | S. 1 3 10·2 | 0·99 |

# SEPTEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 6 43 ·45 | — 0 ·64 | 0 ·63 | S. 17 44 58 ·3 | — 2 ·8 | 8 ·3 | 1 ·0 |
| 1 6 28 ·30 | 0 ·63 | 0 ·63 | 17 46 5 ·3 | 2 ·8 | 8 ·3 | 1 ·0 |
| 1 6 13 ·37 | 0 ·62 | 0 ·63 | 17 47 11 ·2 | 2 ·7 | 8 ·3 | 1 ·0 |
| 1 5 58 ·67 | 0 ·61 | 0 ·63 | 17 48 16 ·0 | 2 ·7 | 8 ·3 | 1 ·0 |
| 1 5 44 ·20 | 0 ·60 | 0 ·63 | 17 49 19 ·5 | 2 ·6 | 8 ·3 | 1 ·0 |
| 1 5 29 ·98 | 0 ·59 | 0 ·63 | 17 50 21 ·7 | 2 ·6 | 8 ·3 | 1 ·0 |
| 1 5 16 ·00 | 0 ·58 | 0 ·63 | 17 51 22 ·7 | 2 ·5 | 8 ·3 | 1 ·0 |
| 1 5 2 ·29 | 0 ·57 | 0 ·63 | 17 52 22 ·4 | 2 ·5 | 8 ·3 | 0 ·9 |
| 1 4 48 ·83 | 0 ·56 | 0 ·63 | 17 53 20 ·8 | 2 ·4 | 8 ·3 | 0 ·9 |
| 1 4 35 ·64 | 0 ·54 | 0 ·63 | 17 54 17 ·9 | 2 ·4 | 8 ·3 | 0 ·9 |
| 1 4 22 ·74 | 0 ·53 | 0 ·63 | 17 55 13 ·7 | 2 ·3 | 8 ·3 | 0 ·9 |
| 1 4 10 ·11 | 0 ·52 | 0 ·62 | 17 56 8 ·0 | 2 ·2 | 8 ·3 | 0 ·9 |
| 1 3 57 ·77 | 0 ·51 | 0 ·62 | 17 57 1 ·0 | 2 ·2 | 8 ·3 | 0 ·9 |
| 1 3 45 ·73 | 0 ·50 | 0 ·62 | 17 57 52 ·6 | 2 ·1 | 8 ·3 | 0 ·9 |
| 1 3 33 ·98 | 0 ·48 | 0 ·62 | 17 58 42 ·7 | 2 ·1 | 8 ·3 | 0 ·9 |
| 1 3 22 ·54 | 0 ·47 | 0 ·62 | 17 59 31 ·3 | 2 ·0 | 8 ·3 | 0 ·9 |
| 1 3 11 ·40 | 0 ·46 | 0 ·62 | 18 0 18 ·5 | 1 ·9 | 8 ·3 | 0 ·9 |
| 1 3 0 ·58 | 0 ·44 | 0 ·62 | 18 1 4 ·2 | 1 ·9 | 8 ·3 | 0 ·9 |
| 1 2 50 ·08 | 0 ·43 | 0 ·62 | 18 1 48 ·4 | 1 ·8 | 8 ·3 | 0 ·9 |
| 1 2 39 ·91 | 0 ·42 | 0 ·62 | 18 2 31 ·1 | 1 ·7 | 8 ·3 | 0 ·9 |
| 1 2 30 ·07 | 0 ·40 | 0 ·62 | 18 3 12 ·2 | 1 ·7 | 8 ·2 | 0 ·9 |
| 1 2 20 ·57 | 0 ·39 | 0 ·62 | 18 3 51 ·8 | 1 ·6 | 8 ·2 | 0 ·9 |
| 1 2 11 ·41 | 0 ·37 | 0 ·62 | 18 4 29 ·9 | 1 ·6 | 8 ·2 | 0 ·9 |
| 1 2 2 ·60 | 0 ·36 | 0 ·62 | 18 5 6 ·3 | 1 ·5 | 8 ·2 | 0 ·9 |
| 1 1 54 ·13 | 0 ·35 | 0 ·62 | 18 5 41 ·2 | 1 ·4 | 8 ·2 | 0 ·9 |
| 1 1 46 ·03 | 0 ·33 | 0 ·62 | 18 6 14 ·4 | 1 ·4 | 8 ·2 | 0 ·9 |
| 1 1 38 ·28 | 0 ·32 | 0 ·62 | 18 6 46 ·0 | 1 ·3 | 8 ·2 | 0 ·9 |
| 1 1 30 ·90 | 0 ·30 | 0 ·62 | 18 7 16 ·0 | 1 ·2 | 8 ·2 | 0 ·9 |
| 1 1 23 ·90 | 0 ·28 | 0 ·62 | 18 7 44 ·2 | 1 ·1 | 8 ·2 | 0 ·9 |
| 1 1 17 ·26 | 0 ·27 | 0 ·61 | 18 8 10 ·8 | 1 ·1 | 8 ·1 | 0 ·9 |
| 1 1 11 ·00 | — 0 ·25 | 0 ·61 | S. 18 8 35 ·7 | — 1 ·0 | 8 ·1 | 0 ·9 |

# OCTOBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 1 13·14 | S. 18 8 27·3 | 0·9681267 | 8 19·5 | 317 17 39·6 | S. 1 3 10·2 | 0·9 |
| 2 | 21 1 7·11 | 18 8 51·1 | ·9687696 | 8 15·5 | 317 19 31·7 | 1 3 14·6 | ·9 |
| 3 | 21 1 1·47 | 18 9 13·3 | ·9694192 | 8 11·5 | 317 21 23·8 | 1 3 19·0 | ·9 |
| 4 | 21 0 56·22 | 18 9 33·7 | ·9700751 | 8 7·4 | 317 23 15·8 | 1 3 23·4 | ·9 |
| 5 | 21 0 51·36 | 18 9 52·4 | ·9707370 | 8 3·4 | 317 25 7·9 | 1 3 27·8 | ·9 |
| 6 | 21 0 46·89 | 18 10 9·4 | ·9714047 | 7 59·4 | 317 27 0·0 | 1 3 32·3 | ·9 |
| 7 | 21 0 42·82 | 18 10 24·7 | ·9720780 | 7 55·4 | 317 28 52·0 | 1 3 36·7 | ·9 |
| 8 | 21 0 39·15 | 18 10 38·3 | ·9727566 | 7 51·4 | 317 30 44·1 | 1 3 41·1 | ·9 |
| 9 | 21 0 35·88 | 18 10 50·1 | ·9734403 | 7 47·5 | 317 32 36·2 | 1 3 45·5 | ·9 |
| 10 | 21 0 33·01 | 18 11 0·2 | ·9741289 | 7 43·5 | 317 34 28·3 | 1 3 49·9 | ·9 |
| 11 | 21 0 30·54 | 18 11 8·6 | ·9748221 | 7 39·5 | 317 36 20·4 | 1 3 54·3 | ·9 |
| 12 | 21 0 28·48 | 18 11 15·2 | ·9755196 | 7 35·5 | 317 38 12·5 | 1 3 58·7 | ·9 |
| 13 | 21 0 26·83 | 18 11 20·1 | ·9762212 | 7 31·6 | 317 40 4·6 | 1 4 3·1 | ·9 |
| 14 | 21 0 25·58 | 18 11 23·2 | ·9769266 | 7 27·6 | 317 41 56·8 | 1 4 7·5 | ·9 |
| 15 | 21 0 24·74 | 18 11 24·6 | ·9776356 | 7 23·7 | 317 43 48·9 | 1 4 11·9 | ·9 |
| 16 | 21 0 24·30 | 18 11 24·3 | ·9783480 | 7 19·8 | 317 45 41·0 | 1 4 16·3 | ·9 |
| 17 | 21 0 24·27 | 18 11 22·2 | ·9790634 | 7 15·8 | 317 47 33·1 | 1 4 20·7 | ·9 |
| 18 | 21 0 24·65 | 18 11 18·4 | ·9797817 | 7 11·9 | 317 49 25·3 | 1 4 25·1 | ·9 |
| 19 | 21 0 25·43 | 18 11 12·9 | ·9805028 | 7 8·0 | 317 51 17·4 | 1 4 29·5 | ·9 |
| 20 | 21 0 26·63 | 18 11 5·6 | ·9812263 | 7 4·1 | 317 53 9·6 | 1 4 33·9 | ·9 |
| 21 | 21 0 28·24 | 18 10 56·5 | ·9819521 | 7 0·2 | 317 55 1·8 | 1 4 38·3 | ·9 |
| 22 | 21 0 30·26 | 18 10 45·7 | ·9826799 | 6 56·3 | 317 56 53·9 | 1 4 42·7 | ·9 |
| 23 | 21 0 32·69 | 18 10 33·1 | ·9834097 | 6 52·4 | 317 58 46·1 | 1 4 47·1 | ·9 |
| 24 | 21 0 35·54 | 18 10 18·7 | ·9841411 | 6 48·5 | 318 0 38·3 | 1 4 51·5 | ·9 |
| 25 | 21 0 38·79 | 18 10 2·6 | ·9848739 | 6 44·6 | 318 2 30·5 | 1 4 55·9 | ·9 |
| 26 | 21 0 42·46 | 18 9 44·8 | ·9856079 | 6 40·8 | 318 4 22·7 | 1 5 0·3 | ·9 |
| 27 | 21 0 46·54 | 18 9 25·2 | ·9863428 | 6 36·9 | 318 6 14·9 | 1 5 4·7 | ·9 |
| 28 | 21 0 51·03 | 18 9 3·8 | ·9870784 | 6 33·0 | 318 8 7·1 | 1 5 9·0 | ·9 |
| 29 | 21 0 55·93 | 18 8 40·7 | ·9878145 | 6 29·2 | 318 9 59·3 | 1 5 13·4 | ·9 |
| 30 | 21 1 1·24 | 18 8 15·9 | ·9885508 | 6 25·4 | 318 11 51·6 | 1 5 17·8 | ·9 |
| 31 | 21 1 6·96 | 18 7 49·4 | ·9892871 | 6 21·5 | 318 13 43·8 | 1 5 22·2 | ·9 |
| 32 | 21 1 13·08 | S. 18 7 21·1 | 0·9900231 | 6 17·7 | 318 15 36·0 | S. 1 5 26·6 | 0·9 |

# OCTOBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 1 11 ·00 | — 0 ·25 | 0 ·61 | S. 18 8 35 ·7 | — 1 ·0 | 8 ·1 | 0 ·9 |
| 1 1 5 ·13 | 0 ·24 | 0 ·61 | 18 8 58 ·9 | 0 ·9 | 8 ·1 | 0 ·9 |
| 1 0 59 ·63 | 0 ·22 | 0 ·61 | 18 9 20 ·4 | 0 ·9 | 8 ·1 | 0 ·9 |
| 1 0 54 ·53 | 0 ·20 | 0 ·61 | 18 9 40 ·2 | 0 ·8 | 8 ·1 | 0 ·9 |
| 1 0 49 ·82 | 0 ·19 | 0 ·61 | 18 9 58 ·3 | 0 ·7 | 8 ·1 | 0 ·9 |
| 1 0 45 ·50 | 0 ·17 | 0 ·61 | 18 10 14 ·7 | 0 ·6 | 8 ·1 | 0 ·9 |
| 1 0 41 ·57 | 0 ·16 | 0 ·61 | 18 10 29 ·4 | 0 ·6 | 8 ·0 | 0 ·9 |
| 1 0 38 ·04 | 0 ·14 | 0 ·61 | 18 10 42 ·3 | 0 ·5 | 8 ·0 | 0 ·9 |
| 1 0 34 ·90 | 0 ·12 | 0 ·61 | 18 10 53 ·6 | 0 ·4 | 8 ·0 | 0 ·9 |
| 1 0 32 ·17 | 0 ·11 | 0 ·61 | 18 11 3 ·1 | 0 ·4 | 8 ·0 | 0 ·9 |
| 1 0 29 ·84 | 0 ·09 | 0 ·61 | 18 11 10 ·9 | 0 ·3 | 8 ·0 | 0 ·9 |
| 1 0 27 ·91 | 0 ·07 | 0 ·61 | 18 11 16 ·9 | 0 ·2 | 8 ·0 | 0 ·9 |
| 1 0 26 ·39 | 0 ·06 | 0 ·61 | 18 11 21 ·3 | 0 ·1 | 8 ·0 | 0 ·9 |
| 1 0 25 ·27 | 0 ·04 | 0 ·61 | 18 11 23 ·9 | — 0 ·1 | 8 ·0 | 0 ·9 |
| 1 0 24 ·56 | — 0 ·02 | 0 ·60 | 18 11 24 ·7 | 0 ·0 | 7 ·9 | 0 ·9 |
| 1 0 24 ·25 | 0 ·00 | 0 ·60 | 18 11 23 ·9 | + 0 ·1 | 7 ·9 | 0 ·9 |
| 1 0 24 ·34 | + 0 ·01 | 0 ·60 | 18 11 21 ·3 | 0 ·1 | 7 ·9 | 0 ·9 |
| 1 0 24 ·84 | 0 ·03 | 0 ·60 | 18 11 17 ·0 | 0 ·2 | 7 ·9 | 0 ·9 |
| 1 0 25 ·75 | 0 ·05 | 0 ·60 | 18 11 10 ·9 | 0 ·3 | 7 ·9 | 0 ·9 |
| 1 0 27 ·06 | 0 ·06 | 0 ·60 | 18 11 3 ·1 | 0 ·4 | 7 ·9 | 0 ·9 |
| 1 0 28 ·78 | 0 ·08 | 0 ·60 | 18 10 53 ·6 | 0 ·4 | 7 ·9 | 0 ·9 |
| 1 0 30 ·92 | 0 ·10 | 0 ·59 | 18 10 42 ·3 | 0 ·5 | 7 ·8 | 0 ·9 |
| 1 0 33 ·46 | 0 ·11 | 0 ·59 | 18 10 29 ·2 | 0 ·6 | 7 ·8 | 0 ·9 |
| 1 0 36 ·42 | 0 ·13 | 0 ·59 | 18 10 14 ·4 | 0 ·7 | 7 ·8 | 0 ·9 |
| 1 0 39 ·78 | 0 ·15 | 0 ·59 | 18 9 57 ·8 | 0 ·7 | 7 ·8 | 0 ·9 |
| 1 0 43 ·55 | 0 ·16 | 0 ·59 | 18 9 39 ·5 | 0 ·8 | 7 ·8 | 0 ·9 |
| 1 0 47 ·74 | 0 ·18 | 0 ·59 | 18 9 19 ·4 | 0 ·9 | 7 ·8 | 0 ·9 |
| 1 0 52 ·33 | 0 ·20 | 0 ·59 | 18 8 57 ·7 | 0 ·9 | 7 ·8 | 0 ·9 |
| 1 0 57 ·33 | 0 ·22 | 0 ·58 | 18 8 34 ·2 | 1 ·0 | 7 ·7 | 0 ·9 |
| 1 1 2 ·73 | 0 ·23 | 0 ·58 | 18 8 9 ·0 | 1 ·1 | 7 ·7 | 0 ·9 |
| 1 1 8 ·54 | 0 ·25 | 0 ·58 | 18 7 42 ·0 | 1 ·2 | 7 ·7 | 0 ·9 |
| 1 1 14 ·76 | + 0 ·27 | 0 ·58 | S. 18 7 13 ·4 | + 1 ·2 | 7 ·7 | 0 ·9 |

# NOVEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 1 13·08 | S. 18 7 21·1 | 0·9900231 | 6 17·7 | 318 15 36·0 | S. 1 5 26·6 | 0·994 |
| 2 | 21 1 19·61 | 18 6 51·1 | ·9907586 | 6 13·9 | 318 17 28·3 | 1 5 31·0 | ·994 |
| 3 | 21 1 26·55 | 18 6 19·4 | ·9914935 | 6 10·1 | 318 19 20·5 | 1 5 35·4 | ·994 |
| 4 | 21 1 33·89 | 18 5 46·0 | ·9922274 | 6 6·2 | 318 21 12·8 | 1 5 39·8 | ·994 |
| 5 | 21 1 41·62 | 18 5 10·9 | ·9929601 | 6 2·4 | 318 23 5·0 | 1 5 44·2 | ·994 |
| 6 | 21 1 49·76 | 18 4 34·1 | ·9936915 | 5 58·6 | 318 24 57·3 | 1 5 48·6 | ·994 |
| 7 | 21 1 58·29 | 18 3 55·6 | ·9944214 | 5 54·9 | 318 26 49·6 | 1 5 53·0 | ·994 |
| 8 | 21 2 7·21 | 18 3 15·4 | ·9951494 | 5 51·1 | 318 28 41·9 | 1 5 57·4 | ·994 |
| 9 | 21 2 16·52 | 18 2 33·6 | ·9958755 | 5 47·3 | 318 30 34·1 | 1 6 1·7 | ·994 |
| 10 | 21 2 26·22 | 18 1 50·1 | ·9965994 | 5 43·5 | 318 32 26·4 | 1 6 6·1 | ·994 |
| 11 | 21 2 36·30 | 18 1 5·0 | ·9973210 | 5 39·8 | 318 34 18·7 | 1 6 10·5 | ·994 |
| 12 | 21 2 46·77 | 18 0 18·2 | ·9980400 | 5 36·0 | 318 36 11·0 | 1 6 14·9 | ·994 |
| 13 | 21 2 57·61 | 17 59 29·8 | ·9987563 | 5 32·3 | 318 38 3·4 | 1 6 19·3 | ·994 |
| 14 | 21 3 8·84 | 17 58 39·8 | 0·9994698 | 5 28·5 | 318 39 55·7 | 1 6 23·6 | ·994 |
| 15 | 21 3 20·43 | 17 57 48·2 | 1·0001801 | 5 24·8 | 318 41 48·0 | 1 6 27·9 | ·994 |
| 16 | 21 3 32·40 | 17 56 55·0 | ·0008872 | 5 21·0 | 318 43 40·3 | 1 6 32·3 | ·994 |
| 17 | 21 3 44·73 | 17 56 0·2 | ·0015909 | 5 17·3 | 318 45 32·7 | 1 6 36·6 | ·994 |
| 18 | 21 3 57·43 | 17 55 3·8 | ·0022910 | 5 13·6 | 318 47 25·0 | 1 6 41·0 | ·994 |
| 19 | 21 4 10·49 | 17 54 5·8 | ·0029873 | 5 9·9 | 318 49 17·4 | 1 6 45·4 | ·994 |
| 20 | 21 4 23·91 | 17 53 6·3 | ·0036798 | 5 6·2 | 318 51 9·8 | 1 6 49·7 | ·994 |
| 21 | 21 4 37·69 | 17 52 5·2 | ·0043682 | 5 2·5 | 318 53 2·1 | 1 6 54·1 | ·994 |
| 22 | 21 4 51·83 | 17 51 2·6 | ·0050524 | 4 58·8 | 318 54 54·5 | 1 6 58·5 | ·994 |
| 23 | 21 5 6·31 | 17 49 58·4 | ·0057322 | 4 55·1 | 318 56 46·9 | 1 7 2·8 | ·994 |
| 24 | 21 5 21·14 | 17 48 52·7 | ·0064075 | 4 51·4 | 318 58 39·3 | 1 7 7·2 | ·994 |
| 25 | 21 5 36·32 | 17 47 45·4 | ·0070780 | 4 47·7 | 319 0 31·7 | 1 7 11·6 | ·994 |
| 26 | 21 5 51·84 | 17 46 36·7 | ·0077435 | 4 44·1 | 319 2 24·1 | 1 7 15·9 | ·994 |
| 27 | 21 6 7·70 | 17 45 26·4 | ·0084040 | 4 40·4 | 319 4 16·5 | 1 7 20·3 | ·994 |
| 28 | 21 6 23·89 | 17 44 14·6 | ·0090592 | 4 36·7 | 319 6 8·9 | 1 7 24·7 | ·994 |
| 29 | 21 6 40·42 | 17 43 1·4 | ·0097090 | 4 33·1 | 319 8 1·3 | 1 7 29·0 | ·994 |
| 30 | 21 6 57·27 | 17 41 46·7 | ·0103531 | 4 29·4 | 319 9 53·8 | 1 7 33·4 | ·994 |
| 31 | 21 7 14·44 | S. 17 40 30·6 | 1·0109915 | 4 25·8 | 319 11 46·2 | S. 1 7 37·7 | 0·994 |

# NOVEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 1 14·76 | + 0·27 | 0·58 | S. 18 7 13·4 | + 1·2 | 7·7 | 0·9 |
| 1 1 21·38 | 0·28 | 0·58 | 18 6 43·0 | 1·3 | 7·7 | 0·9 |
| 1 1 28·40 | 0·30 | 0·58 | 18 6 11·0 | 1·4 | 7·7 | 0·9 |
| 1 1 35·82 | 0·32 | 0·58 | 18 5 37·2 | 1·4 | 7·7 | 0·9 |
| 1 1 43·63 | 0·33 | 0·58 | 18 5 1·8 | 1·5 | 7·6 | 0·9 |
| 1 1 51·84 | 0·35 | 0·58 | 18 4 24·7 | 1·6 | 7·6 | 0·9 |
| 1 2 0·44 | 0·37 | 0·58 | 18 3 45·9 | 1·7 | 7·6 | 0·9 |
| 1 2 9·44 | 0·38 | 0·58 | 18 3 5·4 | 1·7 | 7·6 | 0·9 |
| 1 2 18·82 | 0·40 | 0·58 | 18 2 23·3 | 1·8 | 7·6 | 0·9 |
| 1 2 28·59 | 0·42 | 0·58 | 18 1 39·5 | 1·9 | 7·6 | 0·9 |
| 1 2 38·74 | 0·43 | 0·58 | 18 0 54·1 | 1·9 | 7·6 | 0·9 |
| 1 2 49·27 | 0·45 | 0·57 | 18 0 7·1 | 2·0 | 7·5 | 0·9 |
| 1 3 0·17 | 0·46 | 0·57 | 17 59 18·4 | 2·1 | 7·5 | 0·9 |
| 1 3 11·45 | 0·48 | 0·57 | 17 58 28·2 | 2·1 | 7·5 | 0·9 |
| 1 3 23·09 | 0·49 | 0·57 | 17 57 36·4 | 2·2 | 7·5 | 0·9 |
| 1 3 35·11 | 0·51 | 0·57 | 17 56 42·9 | 2·3 | 7·5 | 0·9 |
| 1 3 47·49 | 0·52 | 0·57 | 17 55 47·9 | 2·3 | 7·5 | 0·9 |
| 1 4 0·24 | 0·54 | 0·57 | 17 54 51·3 | 2·4 | 7·5 | 0·9 |
| 1 4 13·35 | 0·55 | 0·57 | 17 53 53·2 | 2·5 | 7·5 | 0·9 |
| 1 4 26·81 | 0·57 | 0·56 | 17 52 53·5 | 2·5 | 7·4 | 0·9 |
| 1 4 40·63 | 0·58 | 0·56 | 17 51 52·2 | 2·6 | 7·4 | 0·8 |
| 1 4 54·80 | 0·60 | 0·56 | 17 50 49·4 | 2·7 | 7·4 | 0·8 |
| 1 5 9·32 | 0·61 | 0·56 | 17 49 45·0 | 2·7 | 7·4 | 0·8 |
| 1 5 24·19 | 0·63 | 0·56 | 17 48 39·2 | 2·8 | 7·4 | 0·8 |
| 1 5 39·40 | 0·64 | 0·56 | 17 47 31·8 | 2·8 | 7·4 | 0·8 |
| 1 5 54·95 | 0·65 | 0·56 | 17 46 22·9 | 2·9 | 7·4 | 0·8 |
| 1 6 10·83 | 0·67 | 0·56 | 17 45 12·6 | 3·0 | 7·4 | 0·8 |
| 1 6 27·04 | 0·68 | 0·55 | 17 44 0·7 | 3·0 | 7·3 | 0·8 |
| 1 6 43·58 | 0·70 | 0·55 | 17 42 47·4 | 3·1 | 7·3 | 0·8 |
| 1 7 0·45 | 0·71 | 0·55 | 17 41 32·6 | 3·1 | 7·3 | 0·8 |
| 1 7 17·64 | + 0·72 | 0·55 | S. 17 40 16·4 | + 3·2 | 7·3 | 0·8 |

# DECEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 21 7 14·44 | S. 17 40 30·6 | 1·0109915 | 4 25·8 | 319 11 46·2 | S. 1 7 37·7 | 0·99 |
| 2 | 21 7 31·93 | 17 39 13·0 | ·0116240 | 4 22·1 | 319 13 38·6 | 1 7 42·1 | ·99 |
| 3 | 21 7 49·73 | 17 37 54·0 | ·0122504 | 4 18·5 | 319 15 31·1 | 1 7 46·4 | ·99 |
| 4 | 21 8 7·85 | 17 36 33·6 | ·0128705 | 4 14·9 | 319 17 23·5 | 1 7 50·8 | ·99 |
| 5 | 21 8 26·27 | 17 35 11·8 | ·0134843 | 4 11·2 | 319 19 16·0 | 1 7 55·1 | ·99 |
| 6 | 21 8 44·99 | 17 33 48·7 | ·0140916 | 4 7·6 | 319 21 8·5 | 1 7 59·5 | ·99 |
| 7 | 21 9 4·02 | 17 32 24·2 | ·0146923 | 4 4·0 | 319 23 0·9 | 1 8 3·9 | ·99 |
| 8 | 21 9 23·33 | 17 30 58·3 | ·0152863 | 4 0·4 | 319 24 53·4 | 1 8 8·2 | ·99 |
| 9 | 21 9 42·92 | 17 29 31·1 | ·0158734 | 3 56·8 | 319 26 45·9 | 1 8 12·6 | ·99 |
| 10 | 21 10 2·80 | 17 28 2·6 | ·0164536 | 3 53·2 | 319 28 38·4 | 1 8 16·9 | ·99 |
| 11 | 21 10 22·95 | 17 26 32·8 | ·0170267 | 3 49·6 | 319 30 30·9 | 1 8 21·3 | ·99 |
| 12 | 21 10 43·38 | 17 25 1·7 | ·0175927 | 3 46·0 | 319 32 23·4 | 1 8 25·6 | ·99 |
| 13 | 21 11 4·08 | 17 23 29·3 | ·0181514 | 3 42·4 | 319 34 15·9 | 1 8 30·0 | ·99 |
| 14 | 21 11 25·05 | 17 21 55·7 | ·0187027 | 3 38·8 | 319 36 8·4 | 1 8 34·3 | ·99 |
| 15 | 21 11 46·27 | 17 20 20·8 | ·0192466 | 3 35·2 | 319 38 0·9 | 1 8 38·6 | ·99 |
| 16 | 21 12 7·75 | 17 18 44·7 | ·0197830 | 3 31·7 | 319 39 53·4 | 1 8 42·9 | ·99 |
| 17 | 21 12 29·49 | 17 17 7·4 | ·0203117 | 3 28·1 | 319 41 46·0 | 1 8 47·3 | ·99 |
| 18 | 21 12 51·47 | 17 15 28·9 | ·0208326 | 3 24·5 | 319 43 38·5 | 1 8 51·6 | ·99 |
| 19 | 21 13 13·70 | 17 13 49·2 | ·0213456 | 3 20·9 | 319 45 31·0 | 1 8 56·0 | ·99 |
| 20 | 21 13 36·17 | 17 12 8·3 | ·0218507 | 3 17·4 | 319 47 23·6 | 1 9 0·3 | ·99 |
| 21 | 21 13 58·87 | 17 10 26·2 | ·0223477 | 3 13·8 | 319 49 16·1 | 1 9 4·6 | ·99 |
| 22 | 21 14 21·80 | 17 8 43·0 | ·0228365 | 3 10·3 | 319 51 8·7 | 1 9 9·0 | ·99 |
| 23 | 21 14 44·96 | 17 6 58·7 | ·0233171 | 3 6·7 | 319 53 1·3 | 1 9 13·3 | ·99 |
| 24 | 21 15 8·34 | 17 5 13·2 | ·0237892 | 3 3·2 | 319 54 53·8 | 1 9 17·6 | ·99 |
| 25 | 21 15 31·94 | 17 3 26·6 | ·0242528 | 2 59·7 | 319 56 46·4 | 1 9 21·9 | ·99 |
| 26 | 21 15 55·76 | 17 1 39·0 | ·0247079 | 2 56·1 | 319 58 39·0 | 1 9 26·3 | ·99 |
| 27 | 21 16 19·78 | 16 59 50·3 | ·0251543 | 2 52·6 | 320 0 31·6 | 1 9 30·6 | ·99 |
| 28 | 21 16 44·01 | 16 58 0·5 | ·0255919 | 2 49·1 | 320 2 24·1 | 1 9 34·9 | ·99 |
| 29 | 21 17 8·44 | 16 56 9·7 | ·0260206 | 2 45·5 | 320 4 16·7 | 1 9 39·2 | ·99 |
| 30 | 21 17 33·07 | 16 54 17·9 | ·0264404 | 2 42·0 | 320 6 9·3 | 1 9 43·6 | ·99 |
| 31 | 21 17 57·89 | 16 52 25·1 | ·0268511 | 2 38·5 | 320 8 1·9 | 1 9 47·9 | ·99 |
| 32 | 21 18 22·89 | S. 16 50 31·4 | 1·0272527 | 2 35·0 | 320 9 54·5 | S. 1 9 52·2 | 0·99 |

# DECEMBER, 1845.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 21 7 17·64 | + 0·72 | 0·55 | S. 17 40 16·4 | + 3·2 | 7·3 | 0·8 |
| 2 | 21 7 35·15 | 0·74 | 0·55 | 17 38 58·7 | 3·3 | 7·3 | 0·8 |
| 3 | 21 7 52·96 | 0·75 | 0·55 | 17 37 39·7 | 3·3 | 7·3 | 0·8 |
| 4 | 21 8 11·08 | 0·76 | 0·55 | 17 36 19·2 | 3·4 | 7·3 | 0·8 |
| 5 | 21 8 29·51 | 0·78 | 0·55 | 17 34 57·4 | 3·4 | 7·3 | 0·8 |
| 6 | 21 8 48·24 | 0·79 | 0·55 | 17 33 34·2 | 3·5 | 7·3 | 0·8 |
| 7 | 21 9 7·27 | 0·80 | 0·55 | 17 32 9·7 | 3·6 | 7·2 | 0·8 |
| 8 | 21 9 26·58 | 0·81 | 0·55 | 17 30 43·8 | 3·6 | 7·2 | 0·8 |
| 9 | 21 9 46·17 | 0·82 | 0·55 | 17 29 16·6 | 3·7 | 7·2 | 0·8 |
| 10 | 21 10 6·04 | 0·83 | 0·55 | 17 27 48·1 | 3·7 | 7·2 | 0·8 |
| 11 | 21 10 26·19 | 0·85 | 0·55 | 17 26 18·4 | 3·8 | 7·2 | 0·8 |
| 12 | 21 10 46·61 | 0·86 | 0·55 | 17 24 47·3 | 3·8 | 7·2 | 0·8 |
| 13 | 21 11 7·30 | 0·87 | 0·55 | 17 23 15·0 | 3·9 | 7·2 | 0·8 |
| 14 | 21 11 28·25 | 0·88 | 0·55 | 17 21 41·4 | 3·9 | 7·2 | 0·8 |
| 15 | 21 11 49·46 | 0·89 | 0·55 | 17 20 6·5 | 4·0 | 7·2 | 0·8 |
| 16 | 21 12 10·93 | 0·90 | 0·55 | 17 18 30·5 | 4·0 | 7·2 | 0·8 |
| 17 | 21 12 32·65 | 0·91 | 0·54 | 17 16 53·2 | 4·1 | 7·1 | 0·8 |
| 18 | 21 12 54·61 | 0·92 | 0·54 | 17 15 14·8 | 4·1 | 7·1 | 0·8 |
| 19 | 21 13 16·82 | 0·93 | 0·54 | 17 13 35·1 | 4·2 | 7·1 | 0·8 |
| 20 | 21 13 39·27 | 0·94 | 0·54 | 17 11 54·3 | 4·2 | 7·1 | 0·8 |
| 21 | 21 14 1·94 | 0·95 | 0·54 | 17 10 12·4 | 4·3 | 7·1 | 0·8 |
| 22 | 21 14 24·85 | 0·96 | 0·54 | 17 8 29·3 | 4·3 | 7·1 | 0·8 |
| 23 | 21 14 47·98 | 0·97 | 0·54 | 17 6 45·1 | 4·4 | 7·1 | 0·8 |
| 24 | 21 15 11·33 | 0·98 | 0·54 | 17 4 59·7 | 4·4 | 7·1 | 0·8 |
| 25 | 21 15 34·90 | 0·99 | 0·54 | 17 3 13·3 | 4·4 | 7·1 | 0·8 |
| 26 | 21 15 58·68 | 1·00 | 0·54 | 17 1 25·8 | 4·5 | 7·1 | 0·8 |
| 27 | 21 16 22·67 | 1·00 | 0·54 | 16 59 37·2 | 4·5 | 7·1 | 0·8 |
| 28 | 21 16 46·87 | 1·01 | 0·53 | 16 57 47·6 | 4·6 | 7·1 | 0·8 |
| 29 | 21 17 11·26 | 1·02 | 0·53 | 16 55 56·9 | 4·6 | 7·1 | 0·8 |
| 30 | 21 17 35·85 | 1·03 | 0·53 | 16 54 5·3 | 4·7 | 7·1 | 0·8 |
| 31 | 21 18 0·63 | 1·04 | 0·53 | 16 52 12·7 | 4·7 | 7·1 | 0·8 |
| 32 | 21 18 25·59 | + 1·04 | 0·53 | S. 16 50 19·1 | + 4·8 | 7·1 | 0·8 |

# JANUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *No* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 10 29·56 | N.0 21 33·0 | 1·3048673 | 5 25·6 | 5 19 51·9 | S.0 43 7·0 | 1·302 |
| 2 | 0 10 33·53 | 0 22 1·4 | ·3052340 | 5 21·8 | 5 20 30·8 | 0 43 6·8 | ·302 |
| 3 | 0 10 37·69 | 0 22 31·0 | ·3055994 | 5 17·9 | 5 21 9·6 | 0 43 6·6 | ·302 |
| 4 | 0 10 42·02 | 0 23 1·8 | ·3059634 | 5 14·0 | 5 21 48·5 | 0 43 6·4 | ·302 |
| 5 | 0 10 46·54 | 0 23 33·8 | ·3063258 | 5 10·2 | 5 22 27·4 | 0 43 6·2 | ·302 |
| 6 | 0 10 51·24 | 0 24 6·9 | ·3066866 | 5 6·3 | 5 23 6·3 | 0 43 6·0 | ·302 |
| 7 | 0 10 56·11 | 0 24 41·1 | ·3070456 | 5 2·5 | 5 23 45·2 | 0 43 5·8 | ·302 |
| 8 | 0 11 1·16 | 0 25 16·5 | ·3074027 | 4 58·6 | 5 24 24·1 | 0 43 5·6 | ·302 |
| 9 | 0 11 6·39 | 0 25 53·0 | ·3077578 | 4 54·8 | 5 25 3·0 | 0 43 5·4 | ·302 |
| 10 | 0 11 11·80 | 0 26 30·6 | ·3081108 | 4 50·9 | 5 25 41·9 | 0 43 5·2 | ·302 |
| 11 | 0 11 17·38 | 0 27 9·3 | ·3084616 | 4 47·1 | 5 26 20·8 | 0 43 5·0 | ·302 |
| 12 | 0 11 23·13 | 0 27 49·1 | ·3088101 | 4 43·3 | 5 26 59·7 | 0 43 4·8 | ·302 |
| 13 | 0 11 29·05 | 0 28 30·0 | ·3091562 | 4 39·4 | 5 27 38·6 | 0 43 4·6 | ·302 |
| 14 | 0 11 35·14 | 0 29 12·0 | ·3094998 | 4 35·6 | 5 28 17·5 | 0 43 4·4 | ·302 |
| 15 | 0 11 41·39 | 0 29 55·0 | ·3098408 | 4 31·8 | 5 28 56·3 | 0 43 4·2 | ·302 |
| 16 | 0 11 47·81 | 0 30 39·1 | ·3101792 | 4 28·0 | 5 29 35·2 | 0 43 4·0 | ·302 |
| 17 | 0 11 54·39 | 0 31 24·3 | ·3105148 | 4 24·1 | 5 30 14·1 | 0 43 3·8 | ·302 |
| 18 | 0 12 1·14 | 0 32 10·4 | ·3108475 | 4 20·3 | 5 30 53·0 | 0 43 3·6 | ·302 |
| 19 | 0 12 8·04 | 0 32 57·6 | ·3111773 | 4 16·5 | 5 31 31·9 | 0 43 3·4 | ·302 |
| 20 | 0 12 15·10 | 0 33 45·8 | ·3115041 | 4 12·7 | 5 32 10·8 | 0 43 3·2 | ·302 |
| 21 | 0 12 22·32 | 0 34 34·9 | ·3118278 | 4 8·9 | 5 32 49·6 | 0 43 3·0 | ·302 |
| 22 | 0 12 29·69 | 0 35 25·1 | ·3121483 | 4 5·1 | 5 33 28·5 | 0 43 2·8 | ·302 |
| 23 | 0 12 37·21 | 0 36 16·2 | ·3124656 | 4 1·3 | 5 34 7·4 | 0 43 2·6 | ·302 |
| 24 | 0 12 44·89 | 0 37 8·3 | ·3127795 | 3 57·5 | 5 34 46·3 | 0 43 2·4 | ·302 |
| 25 | 0 12 52·71 | 0 38 1·3 | ·3130900 | 3 53·7 | 5 35 25·1 | 0 43 2·2 | ·302 |
| 26 | 0 13 0·68 | 0 38 55·3 | ·3133971 | 3 49·9 | 5 36 4·0 | 0 43 2·0 | ·302 |
| 27 | 0 13 8·80 | 0 39 50·1 | ·3137006 | 3 46·1 | 5 36 42·9 | 0 43 1·8 | ·302 |
| 28 | 0 13 17·06 | 0 40 45·9 | ·3140004 | 3 42·3 | 5 37 21·8 | 0 43 1·6 | ·302 |
| 29 | 0 13 25·47 | 0 41 42·6 | ·3142966 | 3 38·5 | 5 38 0·6 | 0 43 1·4 | ·302 |
| 30 | 0 13 34·01 | 0 42 40·2 | ·3145890 | 3 34·7 | 5 38 39·5 | 0 43 1·2 | ·302 |
| 31 | 0 13 42·69 | 0 43 38·6 | ·3148775 | 3 30·9 | 5 39 18·4 | 0 43 1·0 | ·302 |
| 32 | 0 13 51·51 | N.0 44 37·9 | 1·3151621 | 3 27·1 | 5 39 57·2 | S.0 43 0·8 | 1·302 |

# JANUARY, 1845.

At Transit over the Meridian of Greenwich.

| *rent* ght sion. | Variation of Right Asc. in 1 hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 30 ·44 | + 0 ·16 | 0 ·12 | N. 0 21 39 ·3 | + 1 ·2 | 1 ·8 | 0 ·4 |
| 34 ·44 | 0 ·17 | 0 ·12 | 0 22 7 ·9 | 1 ·2 | 1 ·8 | 0 ·4 |
| 38 ·63 | 0 ·18 | 0 ·12 | 0 22 37 ·7 | 1 ·3 | 1 ·8 | 0 ·4 |
| 42 ·99 | 0 ·19 | 0 ·12 | 0 23 8 ·7 | 1 ·3 | 1 ·8 | 0 ·4 |
| 47 ·54 | 0 ·19 | 0 ·12 | 0 23 40 ·8 | 1 ·4 | 1 ·8 | 0 ·4 |
| 52 ·26 | 0 ·20 | 0 ·12 | 0 24 14 ·1 | 1 ·4 | 1 ·8 | 0 ·4 |
| 57 ·16 | 0 ·21 | 0 ·12 | 0 24 48 ·4 | 1 ·5 | 1 ·8 | 0 ·4 |
| 2 ·23 | 0 ·22 | 0 ·12 | 0 25 23 ·9 | 1 ·5 | 1 ·8 | 0 ·4 |
| 7 ·48 | 0 ·22 | 0 ·12 | 0 26 0 ·6 | 1 ·6 | 1 ·8 | 0 ·4 |
| 12 ·91 | 0 ·23 | 0 ·12 | 0 26 38 ·3 | 1 ·6 | 1 ·8 | 0 ·4 |
| 18 ·51 | 0 ·24 | 0 ·12 | 0 27 17 ·1 | 1 ·6 | 1 ·8 | 0 ·4 |
| 24 ·28 | 0 ·24 | 0 ·12 | 0 27 57 ·1 | 1 ·7 | 1 ·8 | 0 ·4 |
| 30 ·22 | 0 ·25 | 0 ·12 | 0 28 38 ·1 | 1 ·7 | 1 ·8 | 0 ·4 |
| 36 ·32 | 0 ·26 | 0 ·12 | 0 29 20 ·1 | 1 ·8 | 1 ·8 | 0 ·4 |
| 42 ·59 | 0 ·26 | 0 ·12 | 0 30 3 ·2 | 1 ·8 | 1 ·8 | 0 ·4 |
| 49 ·02 | 0 ·27 | 0 ·12 | 0 30 47 ·4 | 1 ·9 | 1 ·8 | 0 ·4 |
| 55 ·62 | 0 ·28 | 0 ·12 | 0 31 32 ·6 | 1 ·9 | 1 ·8 | 0 ·4 |
| 2 ·37 | 0 ·28 | 0 ·12 | 0 32 18 ·9 | 1 ·9 | 1 ·8 | 0 ·4 |
| 9 ·29 | 0 ·29 | 0 ·12 | 0 33 6 ·1 | 2 ·0 | 1 ·8 | 0 ·4 |
| 16 ·36 | 0 ·30 | 0 ·12 | 0 33 54 ·3 | 2 ·0 | 1 ·8 | 0 ·4 |
| 23 ·58 | 0 ·30 | 0 ·12 | 0 34 43 ·5 | 2 ·1 | 1 ·8 | 0 ·4 |
| 30 ·96 | 0 ·31 | 0 ·12 | 0 35 33 ·7 | 2 ·1 | 1 ·8 | 0 ·4 |
| 38 ·49 | 0 ·32 | 0 ·12 | 0 36 24 ·9 | 2 ·2 | 1 ·8 | 0 ·4 |
| 46 ·16 | 0 ·32 | 0 ·12 | 0 37 17 ·0 | 2 ·2 | 1 ·8 | 0 ·4 |
| 53 ·99 | 0 ·33 | 0 ·12 | 0 38 10 ·0 | 2 ·2 | 1 ·8 | 0 ·4 |
| 1 ·97 | 0 ·34 | 0 ·12 | 0 39 4 ·0 | 2 ·3 | 1 ·8 | 0 ·4 |
| 10 ·09 | 0 ·34 | 0 ·12 | 0 39 58 ·8 | 2 ·3 | 1 ·8 | 0 ·4 |
| 18 ·35 | 0 ·35 | 0 ·12 | 0 40 54 ·6 | 2 ·3 | 1 ·8 | 0 ·4 |
| 26 ·75 | 0 ·35 | 0 ·12 | 0 41 51 ·3 | 2 ·4 | 1 ·8 | 0 ·4 |
| 35 ·29 | 0 ·36 | 0 ·12 | 0 42 48 ·8 | 2 ·4 | 1 ·8 | 0 ·4 |
| 43 ·97 | 0 ·36 | 0 ·12 | 0 43 47 ·2 | 2 ·5 | 1 ·8 | 0 ·4 |
| 52 ·79 | + 0 ·37 | 0 ·12 | N. 0 44 46 ·5 | + 2 ·5 | 1 ·8 | 0 ·4 |

# FEBRUARY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | I Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 13 51·51 | N.0 44 37·9 | 1·3151621 | 3 27·1 | 5 39 57·2 | S.0 43 0·8 | 1·3 |
| 2 | 0 14 0·46 | 0 45 38·0 | ·3154427 | 3 23·3 | 5 40 36·1 | 0 43 0·6 | ·3 |
| 3 | 0 14 9·54 | 0 46 39·0 | ·3157193 | 3 19·5 | 5 41 14·9 | 0 43 0·4 | ·3 |
| 4 | 0 14 18·76 | 0 47 40·8 | ·3159918 | 3 15·8 | 5 41 53·8 | 0 43 0·2 | ·3 |
| 5 | 0 14 28·10 | 0 48 43·3 | ·3162600 | 3 12·0 | 5 42 32·7 | 0 43 0·0 | ·3 |
| 6 | 0 14 37·57 | 0 49 46·7 | ·3165239 | 3 8·2 | 5 43 11·5 | 0 42 59·8 | ·3 |
| 7 | 0 14 47·16 | 0 50 50·8 | ·3167834 | 3 4·5 | 5 43 50·4 | 0 42 59·6 | ·3 |
| 8 | 0 14 56·88 | 0 51 55·7 | ·3170386 | 3 0·7 | 5 44 29·3 | 0 42 59·4 | ·3 |
| 9 | 0 15 6·71 | 0 53 1·4 | ·3172892 | 2 56·9 | 5 45 8·1 | 0 42 59·2 | ·3 |
| 10 | 0 15 16·66 | 0 54 7·7 | ·3175353 | 2 53·1 | 5 45 47·0 | 0 42 59·0 | ·3 |
| 11 | 0 15 26·73 | 0 55 14·8 | ·3177767 | 2 49·4 | 5 46 25·8 | 0 42 58·8 | ·3 |
| 12 | 0 15 36·90 | 0 56 22·5 | ·3180135 | 2 45·6 | 5 47 4·7 | 0 42 58·6 | ·3 |
| 13 | 0 15 47·18 | 0 57 30·9 | ·3182455 | 2 41·9 | 5 47 43·5 | 0 42 58·4 | ·3 |
| 14 | 0 15 57·57 | 0 58 39·9 | ·3184728 | 2 38·1 | 5 48 22·4 | 0 42 58·2 | ·3 |
| 15 | 0 16 8·06 | 0 59 49·6 | ·3186952 | 2 34·3 | 5 49 1·2 | 0 42 58·0 | ·3 |
| 16 | 0 16 18·65 | 1 0 59·9 | ·3189128 | 2 30·6 | 5 49 40·1 | 0 42 57·8 | ·3 |
| 17 | 0 16 29·34 | 1 2 10·8 | ·3191254 | 2 26·8 | 5 50 18·9 | 0 42 57·6 | ·3 |
| 18 | 0 16 40·13 | 1 3 22·3 | ·3193331 | 2 23·1 | 5 50 57·8 | 0 42 57·4 | ·3 |
| 19 | 0 16 51·01 | 1 4 34·4 | ·3195359 | 2 19·3 | 5 51 36·6 | 0 42 57·2 | ·3 |
| 20 | 0 17 1·98 | 1 5 47·0 | ·3197337 | 2 15·6 | 5 52 15·5 | 0 42 57·0 | ·3 |
| 21 | 0 17 13·04 | 1 7 0·1 | ·3199265 | 2 11·8 | 5 52 54·3 | 0 42 56·8 | ·3 |
| 22 | 0 17 24·19 | 1 8 13·8 | ·3201141 | 2 8·1 | 5 53 33·2 | 0 42 56·6 | ·3 |
| 23 | 0 17 35·42 | 1 9 28·0 | ·3202967 | 2 4·3 | 5 54 12·0 | 0 42 56·4 | ·3 |
| 24 | 0 17 46·73 | 1 10 42·7 | ·3204741 | 2 0·6 | 5 54 50·8 | 0 42 56·2 | ·3 |
| 25 | 0 17 58·12 | 1 11 57·9 | ·3206463 | 1 56·8 | 5 55 29·7 | 0 42 56·0 | ·3 |
| 26 | 0 18 9·59 | 1 13 13·5 | ·3208133 | 1 53·1 | 5 56 8·5 | 0 42 55·8 | ·3 |
| 27 | 0 18 21·13 | 1 14 29·6 | ·3209749 | 1 49·4 | 5 56 47·3 | 0 42 55·6 | ·3 |
| 28 | 0 18 32·75 | 1 15 46·1 | ·3211313 | 1 45·6 | 5 57 26·2 | 0 42 55·4 | ·3 |
| 29 | 0 18 44·44 | N.1 17 3·1 | 1·3212824 | 1 41·9 | 5 58 5·0 | S.0 42 55·2 | 1·3 |

# FEBRUARY, 1845.

At Transit over the Meridian of Greenwich.

| pparent Right cension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 3 52 ·79 | + 0 ·37 | 0 ·12 | N. 0 44 46 ·5 | + 2 ·5 | 1 ·8 | 0 ·4 |
| 4 1 ·74 | 0 ·38 | 0 ·12 | 0 45 46 ·6 | 2 ·5 | 1 ·8 | 0 ·4 |
| 4 10 ·81 | 0 ·38 | 0 ·12 | 0 46 47 ·5 | 2 ·6 | 1 ·8 | 0 ·4 |
| 4 20 ·02 | 0 ·39 | 0 ·12 | 0 47 49 ·2 | 2 ·6 | 1 ·8 | 0 ·4 |
| 4 29 ·36 | 0 ·39 | 0 ·12 | 0 48 51 ·7 | 2 ·6 | 1 ·8 | 0 ·4 |
| 4 38 ·82 | 0 ·40 | 0 ·12 | 0 49 55 ·0 | 2 ·7 | 1 ·8 | 0 ·4 |
| 4 48 ·40 | 0 ·40 | 0 ·12 | 0 50 59 ·1 | 2 ·7 | 1 ·8 | 0 ·4 |
| 4 58 ·11 | 0 ·41 | 0 ·12 | 0 52 3 ·9 | 2 ·7 | 1 ·8 | 0 ·4 |
| 5 7 ·93 | 0 ·41 | 0 ·12 | 0 53 9 ·5 | 2 ·7 | 1 ·8 | 0 ·4 |
| 5 17 ·87 | 0 ·42 | 0 ·12 | 0 54 15 ·7 | 2 ·8 | 1 ·8 | 0 ·4 |
| 5 27 ·92 | 0 ·42 | 0 ·12 | 0 55 22 ·7 | 2 ·8 | 1 ·8 | 0 ·4 |
| 5 38 ·08 | 0 ·43 | 0 ·12 | 0 56 30 ·3 | 2 ·8 | 1 ·8 | 0 ·4 |
| 5 48 ·34 | 0 ·43 | 0 ·12 | 0 57 38 ·6 | 2 ·9 | 1 ·8 | 0 ·4 |
| 5 58 ·71 | 0 ·43 | 0 ·12 | 0 58 47 ·6 | 2 ·9 | 1 ·8 | 0 ·4 |
| 6 9 ·19 | 0 ·44 | 0 ·12 | 0 59 57 ·1 | 2 ·9 | 1 ·8 | 0 ·4 |
| 6 19 ·77 | 0 ·44 | 0 ·12 | 1 1 7 ·3 | 2 ·9 | 1 ·8 | 0 ·4 |
| 6 30 ·44 | 0 ·45 | 0 ·12 | 1 2 18 ·1 | 3 ·0 | 1 ·8 | 0 ·4 |
| 6 41 ·21 | 0 ·45 | 0 ·12 | 1 3 29 ·4 | 3 ·0 | 1 ·8 | 0 ·4 |
| 6 52 ·07 | 0 ·45 | 0 ·12 | 1 4 41 ·3 | 3 ·0 | 1 ·8 | 0 ·4 |
| 7 3 ·02 | 0 ·46 | 0 ·12 | 1 5 53 ·8 | 3 ·0 | 1 ·8 | 0 ·4 |
| 7 14 ·06 | 0 ·46 | 0 ·12 | 1 7 6 ·9 | 3 ·1 | 1 ·8 | 0 ·4 |
| 7 25 ·18 | 0 ·47 | 0 ·12 | 1 8 20 ·4 | 3 ·1 | 1 ·8 | 0 ·4 |
| 7 36 ·39 | 0 ·47 | 0 ·12 | 1 9 34 ·5 | 3 ·1 | 1 ·8 | 0 ·4 |
| 7 47 ·68 | 0 ·47 | 0 ·12 | 1 10 49 ·0 | 3 ·1 | 1 ·8 | 0 ·4 |
| 7 59 ·05 | 0 ·48 | 0 ·12 | 1 12 4 ·0 | 3 ·1 | 1 ·8 | 0 ·4 |
| 8 10 ·49 | 0 ·48 | 0 ·12 | 1 13 19 ·5 | 3 ·2 | 1 ·8 | 0 ·4 |
| 8 22 ·01 | 0 ·48 | 0 ·12 | 1 14 35 ·4 | 3 ·2 | 1 ·8 | 0 ·4 |
| 8 33 ·60 | 0 ·48 | 0 ·12 | 1 15 51 ·8 | 3 ·2 | 1 ·8 | 0 ·4 |
| 8 45 ·26 | + 0 ·49 | 0 ·12 | N. 1 17 8 ·5 | + 3 ·2 | 1 ·8 | 0 ·4 |

# MARCH, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 18 44·44 | N.1 17 3·1 | 1·3212824 | 1 41·9 | 5 58 5·0 | S.0 42 55·2 | 1·30 |
| 2 | 0 18 56·19 | 1 18 20·4 | ·3214280 | 1 38·2 | 5 58 43·8 | 0 42 55·0 | ·30 |
| 3 | 0 19 8·01 | 1 19 38·1 | ·3215682 | 1 34·4 | 5 59 22·7 | 0 42 54·8 | ·30 |
| 4 | 0 19 19·90 | 1 20 56·2 | ·3217030 | 1 30·7 | 6 0 1·5 | 0 42 54·6 | ·30 |
| 5 | 0 19 31·85 | 1 22 14·7 | ·3218323 | 1 27·0 | 6 0 40·3 | 0 42 54·4 | ·30 |
| 6 | 0 19 43·85 | 1 23 33·4 | ·3219561 | 1 23·2 | 6 1 19·2 | 0 42 54·2 | ·30 |
| 7 | 0 19 55·91 | 1 24 52·5 | ·3220744 | 1 19·5 | 6 1 58·0 | 0 42 54·0 | ·30 |
| 8 | 0 20 8·02 | 1 26 11·9 | ·3221871 | 1 15·8 | 6 2 36·8 | 0 42 53·8 | ·30 |
| 9 | 0 20 20·18 | 1 27 31·5 | ·3222942 | 1 12·0 | 6 3 15·7 | 0 42 53·6 | ·30 |
| 10 | 0 20 32·38 | 1 28 51·4 | ·3223958 | 1 8·3 | 6 3 54·5 | 0 42 53·3 | ·30 |
| 11 | 0 20 44·63 | 1 30 11·6 | ·3224917 | 1 4·6 | 6 4 33·3 | 0 42 53·1 | ·30 |
| 12 | 0 20 56·92 | 1 31 32·0 | ·3225820 | 1 0·8 | 6 5 12·2 | 0 42 52·9 | ·30 |
| 13 | 0 21 9·25 | 1 32 52·5 | ·3226667 | 0 57·1 | 6 5 51·0 | 0 42 52·7 | ·30 |
| 14 | 0 21 21·61 | 1 34 13·3 | ·3227456 | 0 53·4 | 6 6 29·8 | 0 42 52·5 | ·30 |
| 15 | 0 21 34·01 | 1 35 34·2 | ·3228189 | 0 49·7 | 6 7 8·7 | 0 42 52·3 | ·30 |
| 16 | 0 21 46·44 | 1 36 55·3 | ·3228864 | 0 45·9 | 6 7 47·5 | 0 42 52·1 | ·30 |
| 17 | 0 21 58·89 | 1 38 16·5 | ·3229483 | 0 42·2 | 6 8 26·3 | 0 42 51·9 | ·30 |
| 18 | 0 22 11·37 | 1 39 37·9 | ·3230045 | 0 38·5 | 6 9 5·1 | 0 42 51·7 | ·30 |
| 19 | 0 22 23·88 | 1 40 59·3 | ·3230550 | 0 34·7 | 6 9 44·0 | 0 42 51·5 | ·30 |
| 20 | 0 22 36·40 | 1 42 20·8 | ·3230997 | 0 31·0 | 6 10 22·8 | 0 42 51·3 | ·30 |
| 21 | 0 22 48·94 | 1 43 42·4 | ·3231389 | 0 27·3 | 6 11 1·6 | 0 42 51·1 | ·30 |
| 22 | 0 23 1·49 | 1 45 4·0 | ·3231724 | 0 23·6 | 6 11 40·5 | 0 42 50·9 | ·30 |
| 23 | 0 23 14·06 | 1 46 25·6 | ·3232002 | 0 19·9 | 6 12 19·3 | 0 42 50·7 | ·30 |
| 24 | 0 23 26·64 | 1 47 47·3 | ·3232224 | 0 16·1 | 6 12 58·1 | 0 42 50·5 | ·30 |
| 25 | 0 23 39·23 | 1 49 9·0 | ·3232389 | 0 12·4 | 6 13 37·0 | 0 42 50·3 | ·30 |
| 26 | 0 23 51·82 | 1 50 30·7 | ·3232497 | 0 8·7 | 6 14 15·8 | 0 42 50·1 | ·30 |
| 27 | 0 24 4·42 | 1 51 52·4 | ·3232548 | 0 5·0 | 6 14 54·6 | 0 42 49·9 | ·30 |
| 28 | 0 24 17·01 | 1 53 14·0 | ·3232542 | {0 1·2 / 23 57·5} | 6 15 33·4 | 0 42 49·7 | ·30 |
| 29 | 0 24 29·60 | 1 54 35·6 | ·3232479 | 23 53·8 | 6 16 12·3 | 0 42 49·4 | ·30 |
| 30 | 0 24 42·19 | 1 55 57·1 | ·3232359 | 23 50·1 | 6 16 51·1 | 0 42 49·2 | ·30 |
| 31 | 0 24 54·78 | 1 57 18·6 | ·3232183 | 23 46·3 | 6 17 30·0 | 0 42 49·0 | ·30 |
| 32 | 0 25 7·35 | N.1 58 39·9 | 1·3231949 | 23 42·6 | 6 18 8·8 | S.0 42 48·8 | 1·30 |

# MARCH, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 18 45 ·26 | + 0 ·49 | 0 ·12 | N. 1 17 8 ·5 | + 3 ·2 | 1 ·8 | 0 ·4 |
| 0 18 56 ·99 | 0 ·49 | 0 ·12 | 1 18 25 ·7 | 3 ·2 | 1 ·8 | 0 ·4 |
| 0 19 8 ·79 | 0 ·49 | 0 ·12 | 1 19 43 ·2 | 3 ·2 | 1 ·8 | 0 ·4 |
| 0 19 20 ·65 | 0 ·50 | 0 ·12 | 1 21 1 ·1 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 19 32 ·57 | 0 ·50 | 0 ·12 | 1 22 19 ·4 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 19 44 ·55 | 0 ·50 | 0 ·12 | 1 23 38 ·0 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 19 56 ·58 | 0 ·50 | 0 ·12 | 1 24 56 ·9 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 20 8 ·66 | 0 ·50 | 0 ·12 | 1 26 16 ·1 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 20 20 ·79 | 0 ·51 | 0 ·12 | 1 27 35 ·5 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 20 32 ·96 | 0 ·51 | 0 ·12 | 1 28 55 ·2 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 20 45 ·18 | 0 ·51 | 0 ·12 | 1 30 15 ·2 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 20 57 ·44 | 0 ·51 | 0 ·12 | 1 31 35 ·4 | 3 ·3 | 1 ·8 | 0 ·4 |
| 0 21 9 ·74 | 0 ·51 | 0 ·12 | 1 32 55 ·7 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 21 22 ·07 | 0 ·51 | 0 ·12 | 1 34 16 ·3 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 21 34 ·44 | 0 ·52 | 0 ·12 | 1 35 37 ·0 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 21 46 ·83 | 0 ·52 | 0 ·12 | 1 36 57 ·9 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 21 59 ·26 | 0 ·52 | 0 ·12 | 1 38 18 ·9 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 22 11 ·71 | 0 ·52 | 0 ·12 | 1 39 40 ·0 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 22 24 ·18 | 0 ·52 | 0 ·12 | 1 41 1 ·3 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 22 36 ·67 | 0 ·52 | 0 ·12 | 1 42 22 ·6 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 22 49 ·18 | 0 ·52 | 0 ·12 | 1 43 43 ·9 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 23 1 ·70 | 0 ·52 | 0 ·12 | 1 45 5 ·3 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 23 14 ·24 | 0 ·52 | 0 ·12 | 1 46 26 ·8 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 23 26 ·78 | 0 ·52 | 0 ·12 | 1 47 48 ·2 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 23 39 ·34 | 0 ·52 | 0 ·12 | 1 49 9 ·7 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 23 51 ·90 | 0 ·52 | 0 ·12 | 1 50 31 ·2 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 24 4 ·46 | 0 ·52 | 0 ·12 | 1 51 52 ·7 | 3 ·4 | 1 ·8 | 0 ·4 |
| {0 24 17 ·02 / 0 24 29 ·58} | {0 ·52 / 0 ·52} | {0 ·12 / 0 ·12} | {1 53 14 ·1 / 1 54 35 ·5} | {3 ·4 / 3 ·4} | {1 ·8 / 1 ·8} | {0 ·4 / 0 ·4} |
| 0 24 42 ·14 | 0 ·52 | 0 ·12 | 1 55 56 ·8 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 24 54 ·69 | 0 ·52 | 0 ·12 | 1 57 18 ·0 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 25 7 ·23 | 0 ·52 | 0 ·12 | 1 58 39 ·1 | 3 ·4 | 1 ·8 | 0 ·4 |
| 0 25 19 ·76 | + 0 ·52 | 0 ·12 | N. 2 0 0 ·1 | + 3 ·4 | 1 ·8 | 0 ·4 |

# APRIL, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 25 7·35 | N.1 58 39·9 | 1·3231949 | 23 42·6 | 6 18 8·8 | S.0 42 48·8 | 1·3 |
| 2 | 0 25 19·91 | 2 0 1·1 | ·3231659 | 23 38·9 | 6 18 47·6 | 0 42 48·6 | ·3 |
| 3 | 0 25 32·46 | 2 1 22·1 | ·3231312 | 23 35·2 | 6 19 26·5 | 0 42 48·4 | ·3 |
| 4 | 0 25 44·99 | 2 2 43·0 | ·3230908 | 23 31·4 | 6 20 5·3 | 0 42 48·2 | ·3 |
| 5 | 0 25 57·51 | 2 4 3·8 | ·3230448 | 23 27·7 | 6 20 44·2 | 0 42 48·0 | ·3 |
| 6 | 0 26 10·00 | 2 5 24·3 | ·3229932 | 23 24·0 | 6 21 23·0 | 0 42 47·8 | ·3 |
| 7 | 0 26 22·46 | 2 6 44·6 | ·3229359 | 23 20·3 | 6 22 1·8 | 0 42 47·6 | ·3 |
| 8 | 0 26 34·89 | 2 8 4·7 | ·3228730 | 23 16·6 | 6 22 40·7 | 0 42 47·4 | ·3 |
| 9 | 0 26 47·30 | 2 9 24·5 | ·3228046 | 23 12·8 | 6 23 19·5 | 0 42 47·2 | ·3 |
| 10 | 0 26 59·67 | 2 10 44·1 | ·3227306 | 23 9·1 | 6 23 58·4 | 0 42 47·0 | ·3 |
| 11 | 0 27 12·00 | 2 12 3·5 | ·3226510 | 23 5·4 | 6 24 37·2 | 0 42 46·8 | ·3 |
| 12 | 0 27 24·30 | 2 13 22·5 | ·3225659 | 23 1·6 | 6 25 16·1 | 0 42 46·6 | ·3 |
| 13 | 0 27 36·55 | 2 14 41·2 | ·3224753 | 22 57·9 | 6 25 54·9 | 0 42 46·3 | ·3 |
| 14 | 0 27 48·76 | 2 15 59·6 | ·3223792 | 22 54·2 | 6 26 33·8 | 0 42 46·1 | ·3 |
| 15 | 0 28 0·93 | 2 17 17·6 | ·3222776 | 22 50·4 | 6 27 12·6 | 0 42 45·9 | ·3 |
| 16 | 0 28 13·06 | 2 18 35·3 | ·3221707 | 22 46·7 | 6 27 51·5 | 0 42 45·7 | ·3 |
| 17 | 0 28 25·13 | 2 19 52·6 | ·3220583 | 22 43·0 | 6 28 30·3 | 0 42 45·5 | ·3 |
| 18 | 0 28 37·15 | 2 21 9·6 | ·3219406 | 22 39·2 | 6 29 9·2 | 0 42 45·3 | ·3 |
| 19 | 0 28 49·11 | 2 22 26·1 | ·3218175 | 22 35·5 | 6 29 48·0 | 0 42 45·1 | ·3 |
| 20 | 0 29 1·02 | 2 23 42·2 | ·3216893 | 22 31·8 | 6 30 26·9 | 0 42 44·9 | ·3 |
| 21 | 0 29 12·86 | 2 24 57·9 | ·3215559 | 22 28·0 | 6 31 5·7 | 0 42 44·7 | ·3 |
| 22 | 0 29 24·65 | 2 26 13·2 | ·3214173 | 22 24·3 | 6 31 44·6 | 0 42 44·5 | ·3 |
| 23 | 0 29 36·37 | 2 27 28·0 | ·3212735 | 22 20·6 | 6 32 23·5 | 0 42 44·3 | ·3 |
| 24 | 0 29 48·02 | 2 28 42·4 | ·3211246 | 22 16·8 | 6 33 2·4 | 0 42 44·1 | ·3 |
| 25 | 0 29 59·61 | 2 29 56·3 | ·3209706 | 22 13·1 | 6 33 41·2 | 0 42 43·9 | ·3 |
| 26 | 0 30 11·13 | 2 31 9·7 | ·3208114 | 22 9·3 | 6 34 20·1 | 0 42 43·7 | ·3 |
| 27 | 0 30 22·57 | 2 32 22·6 | ·3206472 | 22 5·6 | 6 34 59·0 | 0 42 43·5 | ·3 |
| 28 | 0 30 33·94 | 2 33 35·0 | ·3204780 | 22 1·9 | 6 35 37·8 | 0 42 43·2 | ·3 |
| 29 | 0 30 45·24 | 2 34 46·8 | ·3203037 | 21 58·1 | 6 36 16·7 | 0 42 43·0 | ·3 |
| 30 | 0 30 56·45 | 2 35 58·1 | ·3201245 | 21 54·4 | 6 36 55·6 | 0 42 42·8 | ·3 |
| 31 | 0 31 7·59 | N.2 37 8·8 | 1·3199404 | 21 50·6 | 6 37 34·5 | S.0 42 42·6 | 1·3 |

# APRIL, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 25 19·76 | + 0·52 | 0·12 | N. 2 0 0·1 | + 3·4 | 1·8 | 0·4 |
| 0 25 32·28 | 0·52 | 0·12 | 2 1 21·0 | 3·4 | 1·8 | 0·4 |
| 0 25 44·78 | 0·52 | 0·12 | 2 2 41·7 | 3·4 | 1·8 | 0·4 |
| 0 25 57·26 | 0·52 | 0·12 | 2 4 2·2 | 3·4 | 1·8 | 0·4 |
| 0 26 9·72 | 0·52 | 0·12 | 2 5 22·5 | 3·3 | 1·8 | 0·4 |
| 0 26 22·15 | 0·52 | 0·12 | 2 6 42·6 | 3·3 | 1·8 | 0·4 |
| 0 26 34·55 | 0·52 | 0·12 | 2 8 2·5 | 3·3 | 1·8 | 0·4 |
| 0 26 46·92 | 0·51 | 0·12 | 2 9 22·1 | 3·3 | 1·8 | 0·4 |
| 0 26 59·26 | 0·51 | 0·12 | 2 10 41·5 | 3·3 | 1·8 | 0·4 |
| 0 27 11·56 | 0·51 | 0·12 | 2 12 0·6 | 3·3 | 1·8 | 0·4 |
| 0 27 23·83 | 0·51 | 0·12 | 2 13 19·5 | 3·3 | 1·8 | 0·4 |
| 0 27 36·06 | 0·51 | 0·12 | 2 14 38·0 | 3·3 | 1·8 | 0·4 |
| 0 27 48·24 | 0·51 | 0·12 | 2 15 56·2 | 3·3 | 1·8 | 0·4 |
| 0 28 0·38 | 0·50 | 0·12 | 2 17 14·1 | 3·2 | 1·8 | 0·4 |
| 0 28 12·47 | 0·50 | 0·12 | 2 18 31·6 | 3·2 | 1·8 | 0·4 |
| 0 28 24·51 | 0·50 | 0·12 | 2 19 48·7 | 3·2 | 1·8 | 0·4 |
| 0 28 36·50 | 0·50 | 0·12 | 2 21 5·5 | 3·2 | 1·8 | 0·4 |
| 0 28 48·44 | 0·50 | 0·12 | 2 22 21·8 | 3·2 | 1·8 | 0·4 |
| 0 29 0·32 | 0·49 | 0·12 | 2 23 37·8 | 3·2 | 1·8 | 0·4 |
| 0 29 12·14 | 0·49 | 0·12 | 2 24 53·3 | 3·1 | 1·8 | 0·4 |
| 0 29 23·90 | 0·49 | 0·12 | 2 26 8·4 | 3·1 | 1·8 | 0·4 |
| 0 29 35·59 | 0·49 | 0·12 | 2 27 23·1 | 3·1 | 1·8 | 0·4 |
| 0 29 47·22 | 0·48 | 0·12 | 2 28 37·3 | 3·1 | 1·8 | 0·4 |
| 0 29 58·78 | 0·48 | 0·12 | 2 29 51·0 | 3·1 | 1·8 | 0·4 |
| 0 30 10·28 | 0·48 | 0·12 | 2 31 4·3 | 3·0 | 1·8 | 0·4 |
| 0 30 21·70 | 0·47 | 0·12 | 2 32 17·0 | 3·0 | 1·8 | 0·4 |
| 0 30 33·05 | 0·47 | 0·12 | 2 33 29·2 | 3·0 | 1·8 | 0·4 |
| 0 30 44·32 | 0·47 | 0·12 | 2 34 40·9 | 3·0 | 1·8 | 0·4 |
| 0 30 55·51 | 0·46 | 0·12 | 2 35 52·1 | 3·0 | 1·8 | 0·4 |
| 0 31 6·62 | 0·46 | 0·12 | 2 37 2·7 | 2·9 | 1·8 | 0·4 |
| 0 31 17·65 | + 0·46 | 0·12 | N. 2 38 12·7 | + 2·9 | 1·8 | 0·4 |

# MAY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. of Rad. Vect. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 31 7·59 | N.2 37 8·8 | 1·3199404 | 21 50·6 | 6 37 34·5 | S.0 42 42·6 | 1·3021055 |
| 2 | 0 31 18·64 | 2 38 18·9 | ·3197514 | 21 46·9 | 6 38 13·3 | 0 42 42·4 | ·3021042 |
| 3 | 0 31 29·61 | 2 39 28·5 | ·3195576 | 21 43·1 | 6 38 52·2 | 0 42 42·2 | ·3021030 |
| 4 | 0 31 40·48 | 2 40 37·4 | ·3193591 | 21 39·4 | 6 39 31·1 | 0 42 42·0 | ·3021017 |
| 5 | 0 31 51·26 | 2 41 45·7 | ·3191558 | 21 35·6 | 6 40 10·0 | 0 42 41·8 | ·3021005 |
| 6 | 0 32 1·95 | 2 42 53·3 | ·3189478 | 21 31·8 | 6 40 48·9 | 0 42 41·6 | ·3020992 |
| 7 | 0 32 12·55 | 2 44 0·3 | ·3187351 | 21 28·1 | 6 41 27·8 | 0 42 41·4 | ·3020980 |
| 8 | 0 32 23·05 | 2 45 6·6 | ·3185179 | 21 24·3 | 6 42 6·6 | 0 42 41·2 | ·3020967 |
| 9 | 0 32 33·44 | 2 46 12·3 | ·3182961 | 21 20·6 | 6 42 45·5 | 0 42 41·0 | ·3020954 |
| 10 | 0 32 43·73 | 2 47 17·2 | ·3180698 | 21 16·8 | 6 43 24·4 | 0 42 40·8 | ·3020942 |
| 11 | 0 32 53·92 | 2 48 21·5 | ·3178392 | 21 13·0 | 6 44 3·3 | 0 42 40·6 | ·3020929 |
| 12 | 0 33 4·01 | 2 49 25·0 | ·3176041 | 21 9·2 | 6 44 42·2 | 0 42 40·4 | ·3020916 |
| 13 | 0 33 13·98 | 2 50 27·8 | ·3173647 | 21 5·5 | 6 45 21·1 | 0 42 40·1 | ·3020904 |
| 14 | 0 33 23·85 | 2 51 29·8 | ·3171211 | 21 1·7 | 6 46 0·0 | 0 42 39·9 | ·3020891 |
| 15 | 0 33 33·60 | 2 52 31·1 | ·3168733 | 20 58·0 | 6 46 38·9 | 0 42 39·7 | ·3020879 |
| 16 | 0 33 43·24 | 2 53 31·6 | ·3166214 | 20 54·2 | 6 47 17·8 | 0 42 39·5 | ·3020866 |
| 17 | 0 33 52·76 | 2 54 31·4 | ·3163654 | 20 50·4 | 6 47 56·7 | 0 42 39·3 | ·3020853 |
| 18 | 0 34 2·17 | 2 55 30·3 | ·3161054 | 20 46·6 | 6 48 35·6 | 0 42 39·1 | ·3020841 |
| 19 | 0 34 11·45 | 2 56 28·5 | ·3158415 | 20 42·9 | 6 49 14·5 | 0 42 38·9 | ·3020828 |
| 20 | 0 34 20·61 | 2 57 25·9 | ·3155737 | 20 39·1 | 6 49 53·4 | 0 42 38·7 | ·3020815 |
| 21 | 0 34 29·65 | 2 58 22·4 | ·3153021 | 20 35·3 | 6 50 32·3 | 0 42 38·5 | ·3020802 |
| 22 | 0 34 38·57 | 2 59 18·1 | ·3150268 | 20 31·5 | 6 51 11·2 | 0 42 38·3 | ·3020790 |
| 23 | 0 34 47·36 | 3 0 13·0 | ·3147478 | 20 27·7 | 6 51 50·1 | 0 42 38·1 | ·3020777 |
| 24 | 0 34 56·02 | 3 1 7·0 | ·3144651 | 20 23·9 | 6 52 29·1 | 0 42 37·9 | ·3020764 |
| 25 | 0 35 4·55 | 3 2 0·2 | ·3141789 | 20 20·1 | 6 53 8·0 | 0 42 37·6 | ·3020751 |
| 26 | 0 35 12·95 | 3 2 52·5 | ·3138892 | 20 16·3 | 6 53 46·9 | 0 42 37·4 | ·3020738 |
| 27 | 0 35 21·22 | 3 3 43·9 | ·3135960 | 20 12·5 | 6 54 25·8 | 0 42 37·2 | ·3020726 |
| 28 | 0 35 29·35 | 3 4 34·3 | ·3132994 | 20 8·7 | 6 55 4·7 | 0 42 37·0 | ·3020713 |
| 29 | 0 35 37·35 | 3 5 23·9 | ·3129995 | 20 4·9 | 6 55 43·6 | 0 42 36·8 | ·3020700 |
| 30 | 0 35 45·21 | 3 6 12·6 | ·3126964 | 20 1·1 | 6 56 22·5 | 0 42 36·6 | ·3020688 |
| 31 | 0 35 52·92 | 3 7 0·3 | ·3123901 | 19 57·3 | 6 57 1·5 | 0 42 36·4 | ·3020675 |
| 32 | 0 36 0·49 | N.3 7 47·1 | 1·3120806 | 19 53·5 | 6 57 40·4 | S.0 42 36·2 | 1·3020662 |

# MAY, 1845.

At Transit over the Meridian of Greenwich.

| *arent* ght nsion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 17·65 | + 0·46 | 0·12 | N. 2 38 12·7 | + 2·9 | 1·8 | 0·4 |
| 28·59 | 0·45 | 0·12 | 2 39 22·1 | 2·9 | 1·8 | 0·4 |
| 39·45. | 0·45 | 0·12 | 2 40 30·8 | 2·9 | 1·8 | 0·4 |
| 50·21 | 0·45 | 0·12 | 2 41 39·0 | 2·8 | 1·8 | 0·4 |
| 0·88 | 0·44 | 0·12 | 2 42 46·5 | 2·8 | 1·8 | 0·4 |
| 11·46 | 0·44 | 0·12 | 2 43 53·4 | 2·8 | 1·8 | 0·4 |
| 21·94 | 0·43 | 0·12 | 2 44 59·7 | 2·7 | 1·8 | 0·4 |
| 32·32 | 0·43 | 0·12 | 2 46 5·2 | 2·7 | 1·8 | 0·4 |
| 42·60 | 0·43 | 0·12 | 2 47 10·1 | 2·7 | 1·8 | 0·4 |
| 52·77 | 0·42 | 0·12 | 2 48 14·2 | 2·7 | 1·8 | 0·4 |
| 2·84 | 0·42 | 0·12 | 2 49 17·7 | 2·6 | 1·8 | 0·4 |
| 12·80 | 0·41 | 0·12 | 2 50 20·4 | 2·6 | 1·8 | 0·4 |
| 22·66 | 0·41 | 0·12 | 2 51 22·4 | 2·6 | 1·8 | 0·4 |
| 32·40 | 0·40 | 0·12 | 2 52 23·6 | 2·5 | 1·8 | 0·4 |
| 42·03 | 0·40 | 0·12 | 2 53 24·0 | 2·5 | 1·8 | 0·4 |
| 51·54 | 0·39 | 0·12 | 2 54 23·7 | 2·5 | 1·8 | 0·4 |
| 0·93 | 0·39 | 0·12 | 2 55 22·6 | 2·4 | 1·8 | 0·4 |
| 10·21 | 0·38 | 0·12 | 2 56 20·7 | 2·4 | 1·8 | 0·4 |
| 19·37 | 0·38 | 0·12 | 2 57 18·1 | 2·4 | 1·8 | 0·4 |
| 28·40 | 0·37 | 0·12 | 2 58 14·6 | 2·3 | 1·8 | 0·4 |
| 37·31 | 0·37 | 0·12 | 2 59 10·3 | 2·3 | 1·8 | 0·4 |
| 46·09 | 0·36 | 0·12 | 3 0 5·1 | 2·3 | 1·8 | 0·4 |
| 54·75 | 0·36 | 0·12 | 3 0 59·1 | 2·2 | 1·8 | 0·4 |
| 3·28 | 0·35 | 0·12 | 3 1 52·3 | 2·2 | 1·8 | 0·4 |
| 11·68 | 0·35 | 0·12 | 3 2 44·6 | 2·2 | 1·8 | 0·4 |
| 19·94 | 0·34 | 0·12 | 3 3 35·9 | 2·1 | 1·8 | 0·4 |
| 28·08 | 0·34 | 0·12 | 3 4 26·4 | 2·1 | 1·8 | 0·4 |
| 36·08 | 0·33 | 0·12 | 3 5 16·0 | 2·0 | 1·8 | 0·4 |
| 43·93 | 0·32 | 0·12 | 3 6 4·7 | 2·0 | 1·8 | 0·4 |
| 51·65 | 0·32 | 0·12 | 3 6 52·5 | 2·0 | 1·8 | 0·4 |
| 59·23 | 0·31 | 0·12 | 3 7 39·3 | 1·9 | 1·8 | 0·4 |
| 6·66 | + 0·31 | 0·12 | N. 3 8 25·2 | + 1·9 | 1·8 | 0·4 |

# JUNE, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 36 0·49 | N.3 7 47·1 | 1·3120806 | 19 53·5 | 6 57 40·4 | S.0 42 36·2 | 1·30 |
| 2 | 0 36 7·92 | 3 8 32·9 | ·3117681 | 19 49·7 | 6 58 19·3 | 0 42 36·0 | ·30 |
| 3 | 0 36 15·20 | 3 9 17·8 | ·3114526 | 19 45·9 | 6 58 58·2 | 0 42 35·8 | ·30 |
| 4 | 0 36 22·34 | 3 10 1·7 | ·3111342 | 19 42·1 | 6 59 37·1 | 0 42 35·6 | ·30 |
| 5 | 0 36 29·33 | 3 10 44·7 | ·3108130 | 19 38·3 | 7 0 16·1 | 0 42 35·3 | ·30 |
| 6 | 0 36 36·16 | 3 11 26·6 | ·3104890 | 19 34·5 | 7 0 55·0 | 0 42 35·1 | ·30 |
| 7 | 0 36 42·84 | 3 12 7·6 | ·3101625 | 19 30·6 | 7 1 33·9 | 0 42 34·9 | ·30 |
| 8 | 0 36 49·37 | 3 12 47·5 | ·3098334 | 19 26·8 | 7 2 12·8 | 0 42 34·7 | ·30 |
| 9 | 0 36 55·74 | 3 13 26·4 | ·3095018 | 19 23·0 | 7 2 51·8 | 0 42 34·5 | ·30 |
| 10 | 0 37 1·96 | 3 14 4·4 | ·3091679 | 19 19·1 | 7 3 30·7 | 0 42 34·3 | ·30 |
| 11 | 0 37 8·02 | 3 14 41·3 | ·3088316 | 19 15·3 | 7 4 9·6 | 0 42 34·1 | ·30 |
| 12 | 0 37 13·92 | 3 15 17·1 | ·3084932 | 19 11·5 | 7 4 48·5 | 0 42 33·9 | ·30 |
| 13 | 0 37 19·66 | 3 15 51·9 | ·3081527 | 19 7·6 | 7 5 27·5 | 0 42 33·7 | ·30 |
| 14 | 0 37 25·24 | 3 16 25·7 | ·3078102 | 19 3·8 | 7 6 6·4 | 0 42 33·4 | ·30 |
| 15 | 0 37 30·65 | 3 16 58·4 | ·3074657 | 19 0·0 | 7 6 45·3 | 0 42 33·2 | ·30 |
| 16 | 0 37 35·91 | 3 17 30·0 | ·3071194 | 18 56·1 | 7 7 24·2 | 0 42 33·0 | ·30 |
| 17 | 0 37 41·00 | 3 18 0·6 | ·3067713 | 18 52·3 | 7 8 3·2 | 0 42 32·8 | ·30 |
| 18 | 0 37 45·92 | 3 18 30·1 | ·3064216 | 18 48·4 | 7 8 42·1 | 0 42 32·6 | ·30 |
| 19 | 0 37 50·68 | 3 18 58·6 | ·3060703 | 18 44·5 | 7 9 21·0 | 0 42 32·4 | ·30 |
| 20 | 0 37 55·27 | 3 19 26·0 | ·3057174 | 18 40·7 | 7 10 0·0 | 0 42 32·2 | ·30 |
| 21 | 0 37 59·69 | 3 19 52·3 | ·3053631 | 18 36·8 | 7 10 38·9 | 0 42 32·0 | ·30 |
| 22 | 0 38 3·95 | 3 20 17·5 | ·3050075 | 18 33·0 | 7 11 17·8 | 0 42 31·8 | ·30 |
| 23 | 0 38 8·03 | 3 20 41·6 | ·3046506 | 18 29·1 | 7 11 56·8 | 0 42 31·5 | ·30 |
| 24 | 0 38 11·95 | 3 21 4·6 | ·3042926 | 18 25·2 | 7 12 35·7 | 0 42 31·3 | ·30 |
| 25 | 0 38 15·70 | 3 21 26·5 | ·3039334 | 18 21·4 | 7 13 14·6 | 0 42 31·1 | ·30 |
| 26 | 0 38 19·27 | 3 21 47·3 | ·3035733 | 18 17·5 | 7 13 53·6 | 0 42 30·9 | ·30 |
| 27 | 0 38 22·68 | 3 22 6·9 | ·3032123 | 18 13·6 | 7 14 32·5 | 0 42 30·7 | ·30 |
| 28 | 0 38 25·91 | 3 22 25·4 | ·3028504 | 18 9·7 | 7 15 11·4 | 0 42 30·5 | ·30 |
| 29 | 0 38 28·96 | 3 22 42·8 | ·3024878 | 18 5·8 | 7 15 50·4 | 0 42 30·3 | ·30 |
| 30 | 0 38 31·84 | 3 22 59·1 | ·3021246 | 18 2·0 | 7 16 29·3 | 0 42 30·1 | ·30 |
| 31 | 0 38 34·54 | N.3 23 14·2 | 1·3017609 | 17 58·1 | 7 17 8·2 | S.0 42 29·8 | 1·30 |

# JUNE, 1845.

At Transit over the Meridian of Greenwich.

| *parent* Right ension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 6 ·66 | + 0 ·31 | 0 ·12 | N. 3 8 25 ·2 | + 1 ·9 | 1 ·8 | 0 ·4 |
| 13 ·95 | 0 ·30 | 0 ·12 | 3 9 10 ·1 | 1 ·8 | 1 ·8 | 0 ·4 |
| 21 ·09 | 0 ·29 | 0 ·12 | 3 9 54 ·0 | 1 ·8 | 1 ·8 | 0 ·4 |
| 28 ·08 | 0 ·29 | 0 ·12 | 3 10 37 ·0 | 1 ·8 | 1 ·8 | 0 ·4 |
| 34 ·93 | 0 ·28 | 0 ·12 | 3 11 19 ·0 | 1 ·7 | 1 ·8 | 0 ·4 |
| 41 ·62 | 0 ·28 | 0 ·12 | 3 12 0 ·1 | 1 ·7 | 1 ·8 | 0 ·4 |
| 48 ·16 | 0 ·27 | 0 ·12 | 3 12 40 ·1 | 1 ·6 | 1 ·8 | 0 ·4 |
| 54 ·55 | 0 ·26 | 0 ·12 | 3 13 19 ·1 | 1 ·6 | 1 ·8 | 0 ·4 |
| 0 ·78 | 0 ·26 | 0 ·12 | 3 13 57 ·1 | 1 ·6 | 1 ·8 | 0 ·4 |
| 6 ·85 | 0 ·25 | 0 ·12 | 3 14 34 ·1 | 1 ·5 | 1 ·8 | 0 ·4 |
| 12 ·77 | 0 ·24 | 0 ·12 | 3 15 10 ·1 | 1 ·5 | 1 ·8 | 0 ·4 |
| 18 ·52 | 0 ·24 | 0 ·12 | 3 15 45 ·0 | 1 ·4 | 1 ·8 | 0 ·4 |
| 24 ·12 | 0 ·23 | 0 ·12 | 3 16 18 ·9 | 1 ·4 | 1 ·8 | 0 ·4 |
| 29 ·55 | 0 ·22 | 0 ·12 | 3 16 51 ·7 | 1 ·3 | 1 ·8 | 0 ·4 |
| 34 ·83 | 0 ·22 | 0 ·12 | 3 17 23 ·5 | 1 ·3 | 1 ·8 | 0 ·4 |
| 39 ·94 | 0 ·21 | 0 ·12 | 3 17 54 ·2 | 1 ·3 | 1 ·8 | 0 ·4 |
| 44 ·88 | 0 ·20 | 0 ·12 | 3 18 23 ·9 | 1 ·2 | 1 ·8 | 0 ·4 |
| 49 ·66 | 0 ·20 | 0 ·12 | 3 18 52 ·5 | 1 ·2 | 1 ·8 | 0 ·4 |
| 54 ·28 | 0 ·19 | 0 ·12 | 3 19 20 ·1 | 1 ·1 | 1 ·8 | 0 ·4 |
| 58 ·72 | 0 ·18 | 0 ·12 | 3 19 46 ·5 | 1 ·1 | 1 ·8 | 0 ·4 |
| 3 ·00 | 0 ·17 | 0 ·12 | 3 20 11 ·9 | 1 ·0 | 1 ·8 | 0 ·4 |
| 7 ·12 | 0 ·17 | 0 ·12 | 3 20 36 ·2 | 1 ·0 | 1 ·8 | 0 ·4 |
| 11 ·06 | 0 ·16 | 0 ·12 | 3 20 59 ·4 | 0 ·9 | 1 ·8 | 0 ·4 |
| 14 ·84 | 0 ·15 | 0 ·12 | 3 21 21 ·5 | 0 ·9 | 1 ·8 | 0 ·4 |
| 18 ·45 | 0 ·15 | 0 ·13 | 3 21 42 ·5 | 0 ·8 | 1 ·9 | 0 ·4 |
| 21 ·88 | 0 ·14 | 0 ·13 | 3 22 2 ·3 | 0 ·8 | 1 ·9 | 0 ·4 |
| 25 ·15 | 0 ·13 | 0 ·13 | 3 22 21 ·1 | 0 ·8 | 1 ·9 | 0 ·4 |
| 28 ·24 | 0 ·12 | 0 ·13 | 3 22 38 ·7 | 0 ·7 | 1 ·9 | 0 ·4 |
| 31 ·15 | 0 ·12 | 0 ·13 | 3 22 55 ·2 | 0 ·7 | 1 ·9 | 0 ·4 |
| 33 ·89 | 0 ·11 | 0 ·13 | 3 23 10 ·6 | 0 ·6 | 1 ·9 | 0 ·4 |
| 36 ·44 | + 0 ·10 | 0 ·13 | N. 3 23 24 ·8 | + 0 ·6 | 1 ·9 | 0 ·4 |

# JULY, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | L Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 38 34·54 | N.3 23 14·2 | 1·3017609 | 17 58·1 | 7 17 8·2 | S.0 42 29·8 | 1·3 |
| 2 | 0 38 37·06 | 3 23 28·3 | ·3013968 | 17 54·2 | 7 17 47·1 | 0 42 29·6 | ·3 |
| 3 | 0 38 39·40 | 3 23 41·1 | ·3010324 | 17 50·3 | 7 18 26·1 | 0 42 29·4 | ·3 |
| 4 | 0 38 41·57 | 3 23 52·9 | ·3006678 | 17 46·4 | 7 19 5·0 | 0 42 29·2 | ·3 |
| 5 | 0 38 43·55 | 3 24 3·5 | ·3003030 | 17 42·5 | 7 19 43·9 | 0 42 29·0 | ·3 |
| 6 | 0 38 45·36 | 3 24 12·9 | ·2999383 | 17 38·6 | 7 20 22·9 | 0 42 28·8 | ·3 |
| 7 | 0 38 46·99 | 3 24 21·2 | ·2995737 | 17 34·7 | 7 21 1·8 | 0 42 28·6 | ·3 |
| 8 | 0 38 48·43 | 3 24 28·3 | ·2992094 | 17 30·7 | 7 21 40·7 | 0 42 28·3 | ·3 |
| 9 | 0 38 49·70 | 3 24 34·3 | ·2988454 | 17 26·8 | 7 22 19·7 | 0 42 28·1 | ·3 |
| 10 | 0 38 50·79 | 3 24 39·2 | ·2984819 | 17 22·9 | 7 22 58·6 | 0 42 27·9 | ·3 |
| 11 | 0 38 51·69 | 3 24 42·9 | ·2981189 | 17 19·0 | 7 23 37·5 | 0 42 27·7 | ·3 |
| 12 | 0 38 52·42 | 3 24 45·5 | ·2977566 | 17 15·1 | 7 24 16·4 | 0 42 27·5 | ·3 |
| 13 | 0 38 52·97 | 3 24 47·0 | ·2973951 | 17 11·2 | 7 24 55·4 | 0 42 27·3 | ·3 |
| 14 | 0 38 53·34 | 3 24 47·3 | ·2970345 | 17 7·2 | 7 25 34·3 | 0 42 27·1 | ·3 |
| 15 | 0 38 53·53 | 3 24 46·5 | ·2966748 | 17 3·3 | 7 26 13·2 | 0 42 26·8 | ·3 |
| 16 | 0 38 53·55 | 3 24 44·5 | ·2963163 | 16 59·4 | 7 26 52·1 | 0 42 26·6 | ·3 |
| 17 | 0 38 53·38 | 3 24 41·4 | ·2959589 | 16 55·4 | 7 27 31·1 | 0 42 26·4 | ·3 |
| 18 | 0 38 53·04 | 3 24 37·2 | ·2956028 | 16 51·5 | 7 28 10·0 | 0 42 26·2 | ·3 |
| 19 | 0 38 52·52 | 3 24 31·8 | ·2952480 | 16 47·5 | 7 28 48·9 | 0 42 26·0 | ·3 |
| 20 | 0 38 51·82 | 3 24 25·4 | ·2948946 | 16 43·6 | 7 29 27·8 | 0 42 25·8 | ·3 |
| 21 | 0 38 50·95 | 3 24 17·8 | ·2945428 | 16 39·7 | 7 30 6·8 | 0 42 25·6 | ·3 |
| 22 | 0 38 49·90 | 3 24 9·0 | ·2941926 | 16 35·7 | 7 30 45·7 | 0 42 25·3 | ·3 |
| 23 | 0 38 48·67 | 3 23 59·2 | ·2938442 | 16 31·8 | 7 31 24·6 | 0 42 25·1 | ·3 |
| 24 | 0 38 47·27 | 3 23 48·2 | ·2934976 | 16 27·8 | 7 32 3·5 | 0 42 24·9 | ·3 |
| 25 | 0 38 45·69 | 3 23 36·1 | ·2931530 | 16 23·8 | 7 32 42·4 | 0 42 24·7 | ·3 |
| 26 | 0 38 43·94 | 3 23 23·0 | ·2928105 | 16 19·9 | 7 33 21·3 | 0 42 24·5 | ·3 |
| 27 | 0 38 42·02 | 3 23 8·7 | ·2924702 | 16 15·9 | 7 34 0·3 | 0 42 24·3 | ·3 |
| 28 | 0 38 39·92 | 3 22 53·3 | ·2921322 | 16 11·9 | 7 34 39·2 | 0 42 24·0 | ·3 |
| 29 | 0 38 37·65 | 3 22 36·8 | ·2917966 | 16 8·0 | 7 35 18·1 | 0 42 23·8 | ·3 |
| 30 | 0 38 35·21 | 3 22 19·3 | ·2914635 | 16 4·0 | 7 35 57·0 | 0 42 23·6 | ·3 |
| 31 | 0 38 32·59 | 3 22 0·7 | ·2911330 | 16 0·0 | 7 36 35·9 | 0 42 23·4 | ·3 |
| 32 | 0 38 29·81 | N.3 21 41·0 | 1·2908053 | 15 56·0 | 7 37 14·8 | S.0 42 23·2 | 1·3 |

# JULY, 1845.

At Transit over the Meridian of Greenwich.

| ent it ion. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 6 ·44 | + 0 ·10 | 0 ·13 | N. 3 23 24 ·8 | + 0 ·6 | 1 ·9 | 0 ·4 |
| 8 ·82 | 0 ·10 | 0 ·13 | 3 23 38 ·0 | 0 ·5 | 1 ·9 | 0 ·4 |
| 1 ·03 | 0 ·09 | 0 ·13 | 3 23 50 ·0 | 0 ·5 | 1 ·9 | 0 ·4 |
| 3 ·06 | 0 ·08 | 0 ·13 | 3 24 0 ·8 | 0 ·4 | 1 ·9 | 0 ·4 |
| 4 ·90 | 0 ·07 | 0 ·13 | 3 24 10 ·5 | 0 ·4 | 1 ·9 | 0 ·4 |
| 6 ·57 | 0 ·07 | 0 ·13 | 3 24 19 ·1 | 0 ·3 | 1 ·9 | 0 ·4 |
| 8 ·06 | 0 ·06 | 0 ·13 | 3 24 26 ·5 | 0 ·3 | 1 ·9 | 0 ·4 |
| 9 ·37 | 0 ·05 | 0 ·13 | 3 24 32 ·8 | 0 ·2 | 1 ·9 | 0 ·4 |
| 0 ·51 | 0 ·04 | 0 ·13 | 3 24 38 ·0 | 0 ·2 | 1 ·9 | 0 ·4 |
| 1 ·46 | 0 ·04 | 0 ·13 | 3 24 42 ·0 | 0 ·1 | 1 ·9 | 0 ·4 |
| 2 ·23 | 0 ·03 | 0 ·13 | 3 24 44 ·9 | 0 ·1 | 1 ·9 | 0 ·4 |
| 2 ·83 | 0 ·02 | 0 ·13 | 3 24 46 ·7 | + 0 ·1 | 1 ·9 | 0 ·4 |
| 3 ·25 | 0 ·01 | 0 ·13 | 3 24 47 ·3 | 0 ·0 | 1 ·9 | 0 ·4 |
| 3 ·50 | + 0 ·01 | 0 ·13 | 3 24 46 ·8 | 0 ·0 | 1 ·9 | 0 ·4 |
| 3 ·56 | 0 ·00 | 0 ·13 | 3 24 45 ·2 | − 0 ·1 | 1 ·9 | 0 ·4 |
| 3 ·45 | − 0 ·01 | 0 ·13 | 3 24 42 ·4 | 0 ·1 | 1 ·9 | 0 ·4 |
| 3 ·16 | 0 ·02 | 0 ·13 | 3 24 38 ·6 | 0 ·2 | 1 ·9 | 0 ·4 |
| 2 ·69 | 0 ·02 | 0 ·13 | 3 24 33 ·6 | 0 ·2 | 1 ·9 | 0 ·4 |
| 2 ·05 | 0 ·03 | 0 ·13 | 3 24 27 ·4 | 0 ·3 | 1 ·9 | 0 ·4 |
| 1 ·23 | 0 ·04 | 0 ·13 | 3 24 20 ·2 | 0 ·3 | 1 ·9 | 0 ·4 |
| 0 ·24 | 0 ·05 | 0 ·13 | 3 24 11 ·8 | 0 ·4 | 1 ·9 | 0 ·4 |
| 9 ·07 | 0 ·05 | 0 ·13 | 3 24 2 ·3 | 0 ·4 | 1 ·9 | 0 ·4 |
| 7 ·73 | 0 ·06 | 0 ·13 | 3 23 51 ·7 | 0 ·5 | 1 ·9 | 0 ·4 |
| 6 ·21 | 0 ·07 | 0 ·13 | 3 23 40 ·1 | 0 ·5 | 1 ·9 | 0 ·4 |
| 4 ·52 | 0 ·07 | 0 ·13 | 3 23 27 ·3 | 0 ·6 | 1 ·9 | 0 ·4 |
| 2 ·65 | 0 ·08 | 0 ·13 | 3 23 13 ·4 | 0 ·6 | 1 ·9 | 0 ·4 |
| 0 ·61 | 0 ·09 | 0 ·13 | 3 22 58 ·4 | 0 ·6 | 1 ·9 | 0 ·4 |
| 8 ·40 | 0 ·10 | 0 ·13 | 3 22 42 ·3 | 0 ·7 | 1 ·9 | 0 ·4 |
| 6 ·03 | 0 ·10 | 0 ·13 | 3 22 25 ·2 | 0 ·7 | 1 ·9 | 0 ·4 |
| 3 ·48 | 0 ·11 | 0 ·13 | 3 22 6 ·9 | 0 ·8 | 1 ·9 | 0 ·4 |
| 0 ·75 | 0 ·12 | 0 ·13 | 3 21 47 ·6 | 0 ·8 | 1 ·9 | 0 ·4 |
| 7 ·86 | − 0 ·12 | 0 ·13 | N. 3 21 27 ·3 | − 0 ·9 | 1 ·9 | 0 ·4 |

# AUGUST, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *N* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 38 29·81 | N.3 21 41·0 | 1·2908053 | 15 56·0 | 7 37 14·8 | S. 0 42 23·2 | 1·30 |
| 2 | 0 38 26·85 | 3 21 20·2 | ·2904804 | 15 52·1 | 7 37 53·7 | 0 42 23·0 | ·30 |
| 3 | 0 38 23·73 | 3 20 58·4 | ·2901585 | 15 48·1 | 7 38 32·6 | 0 42 22·7 | ·30 |
| 4 | 0 38 20·44 | 3 20 35·5 | ·2898397 | 15 44·1 | 7 39 11·5 | 0 42 22·5 | ·30 |
| 5 | 0 38 16·98 | 3 20 11·6 | ·2895240 | 15 40·1 | 7 39 50·4 | 0 42 22·3 | ·30 |
| 6 | 0 38 13·36 | 3 19 46·7 | ·2892116 | 15 36·1 | 7 40 29·3 | 0 42 22·1 | ·30 |
| 7 | 0 38 9·58 | 3 19 20·7 | ·2889026 | 15 32·1 | 7 41 8·2 | 0 42 21·9 | ·30 |
| 8 | 0 38 5·64 | 3 18 53·8 | ·2885971 | 15 28·1 | 7 41 47·1 | 0 42 21·7 | ·30 |
| 9 | 0 38 1·54 | 3 18 25·8 | ·2882952 | 15 24·1 | 7 42 26·0 | 0 42 21·4 | ·30 |
| 10 | 0 37 57·28 | 3 17 56·9 | ·2879970 | 15 20·1 | 7 43 4·9 | 0 42 21·2 | ·30 |
| 11 | 0 37 52·86 | 3 17 27·0 | 2877026 | 15 16·1 | 7 43 43·8 | 0 42 21·0 | ·30 |
| 12 | 0 37 48·29 | 3 16 56·1 | ·2874121 | 15 12·1 | 7 44 22·7 | 0 42 20·8 | ·30 |
| 13 | 0 37 43·58 | 3 16 24·3 | ·2871256 | 15 8·1 | 7 45 1·6 | 0 42 20·6 | ·30 |
| 14 | 0 37 38·71 | 3 15 51·6 | ·2868433 | 15 4·1 | 7 45 40·5 | 0 42 20·4 | ·30 |
| 15 | 0 37 33·69 | 3 15 17·9 | ·2865651 | 15 0·0 | 7 46 19·4 | 0 42 20·1 | ·30 |
| 16 | 0 37 28·53 | 3 14 43·4 | ·2862911 | 14 56·0 | 7 46 58·3 | 0 42 19·9 | ·30 |
| 17 | 0 37 23·23 | 3 14 7·9 | ·2860216 | 14 52·0 | 7 47 37·2 | 0 42 19·7 | ·30 |
| 18 | 0 37 17·79 | 3 13 31·6 | ·2857564 | 14 48·0 | 7 48 16·1 | 0 42 19·5 | ·30 |
| 19 | 0 37 12·20 | 3 12 54·4 | ·2854957 | 14 44·0 | 7 48 55·0 | 0 42 19·3 | ·30 |
| 20 | 0 37 6·48 | 3 12 16·3 | ·2852396 | 14 39·9 | 7 49 33·8 | 0 42 19·0 | ·30 |
| 21 | 0 37 0·62 | 3 11 37·4 | ·2849882 | 14 35·9 | 7 50 12·7 | 0 42 18·8 | ·30 |
| 22 | 0 36 54·63 | 3 10 57·7 | ·2847416 | 14 31·9 | 7 50 51·6 | 0 42 18·6 | ·30 |
| 23 | 0 36 48·50 | 3 10 17·1 | ·2844998 | 14 27·8 | 7 51 30·5 | 0 42 18·4 | ·30 |
| 24 | 0 36 42·24 | 3 9 35·7 | ·2842630 | 14 23·8 | 7 52 9·4 | 0 42 18·2 | ·30 |
| 25 | 0 36 35·86 | 3 8 53·6 | ·2840313 | 14 19·8 | 7 52 48·2 | 0 42 17·9 | ·30 |
| 26 | 0 36 29·35 | 3 8 10·7 | ·2838048 | 14 15·7 | 7 53 27·1 | 0 42 17·7 | ·30 |
| 27 | 0 36 22·72 | 3 7 27·0 | ·2835835 | 14 11·7 | 7 54 6·0 | 0 42 17·5 | ·30 |
| 28 | 0 36 15·97 | 3 6 42·6 | ·2833675 | 14 7·6 | 7 54 44·9 | 0 42 17·3 | ·30 |
| 29 | 0 38 9·10 | 3 5 57·5 | ·2831569 | 14 3·6 | 7 55 23·7 | 0 42 17·1 | ·30 |
| 30 | 0 38 2·12 | 3 5 11·7 | ·2829518 | 13 59·5 | 7 56 2·6 | 0 42 16·9 | ·30 |
| 31 | 0 36 [illegible]·03 | 3 4 25·1 | ·2827523 | 13 55·5 | 7 56 41·5 | 0 42 16·6 | ·30 |
| 32 | 0 35 [illegible] 29·[illegible]3 | N.3 3 37·9 | 1·2825585 | 13 51·4 | 7 57 20·4 | S. 0 42 16·4 | 1·30 |

# AUGUST, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 38 27 ·86 | — 0 ·12 | 0 ·13 | N. 3 21 27 ·3 | — 0 ·9 | 1 ·9 | 0 ·4 |
| 0 38 24 ·80 | 0 ·13 | 0 ·13 | 3 21 5 ·9 | 0 ·9 | 1 ·9 | 0 ·4 |
| 0 38 21 ·58 | 0 ·14 | 0 ·13 | 3 20 43 ·4 | 1 ·0 | 1 ·9 | 0 ·4 |
| 0 38 18 ·19 | 0 ·14 | 0 ·13 | 3 20 19 ·9 | 1 ·0 | 1 ·9 | 0 ·4 |
| 0 38 14 ·64 | 0 ·15 | 0 ·13 | 3 19 55 ·4 | 1 ·0 | 1 ·9 | 0 ·4 |
| 0 38 10 ·92 | 0 ·16 | 0 ·13 | 3 19 29 ·9 | 1 ·1 | 1 ·9 | 0 ·4 |
| 0 38 7 ·05 | 0 ·16 | 0 ·13 | 3 19 3 ·4 | 1 ·1 | 1 ·9 | 0 ·4 |
| 0 38 3 ·01 | 0 ·17 | 0 ·13 | 3 18 35 ·9 | 1 ·2 | 1 ·9 | 0 ·4 |
| 0 37 58 ·82 | 0 ·18 | 0 ·13 | 3 18 7 ·4 | 1 ·2 | 1 ·9 | 0 ·4 |
| 0 37 54 ·47 | 0 ·18 | 0 ·13 | 3 17 37 ·9 | 1 ·2 | 1 ·9 | 0 ·4 |
| 0 37 49 ·97 | 0 ·19 | 0 ·13 | 3 17 7 ·5 | 1 ·3 | 1 ·9 | 0 ·4 |
| 0 37 45 ·32 | 0 ·20 | 0 ·13 | 3 16 36 ·1 | 1 ·3 | 1 ·9 | 0 ·4 |
| 0 37 40 ·52 | 0 ·20 | 0 ·13 | 3 16 3 ·8 | 1 ·4 | 1 ·9 | 0 ·4 |
| 0 37 35 ·58 | 0 ·21 | 0 ·13 | 3 15 30 ·6 | 1 ·4 | 1 ·9 | 0 ·4 |
| 0 37 30 ·49 | 0 ·22 | 0 ·13 | 3 14 56 ·4 | 1 ·4 | 1 ·9 | 0 ·4 |
| 0 37 25 ·25 | 0 ·22 | 0 ·13 | 3 14 21 ·4 | 1 ·5 | 1 ·9 | 0 ·4 |
| 0 37 19 ·87 | 0 ·23 | 0 ·13 | 3 13 45 ·5 | 1 ·5 | 1 ·9 | 0 ·4 |
| 0 37 14 ·36 | 0 ·23 | 0 ·13 | 3 13 8 ·7 | 1 ·6 | 1 ·9 | 0 ·4 |
| 0 37 8 ·71 | 0 ·24 | 0 ·13 | 3 12 31 ·1 | 1 ·6 | 1 ·9 | 0 ·4 |
| 0 37 2 ·92 | 0 ·24 | 0 ·13 | 3 11 52 ·7 | 1 ·6 | 1 ·9 | 0 ·4 |
| 0 36 56 ·99 | 0 ·25 | 0 ·13 | 3 11 13 ·4 | 1 ·7 | 1 ·9 | 0 ·4 |
| 0 36 50 ·93 | 0 ·26 | 0 ·13 | 3 10 33 ·2 | 1 ·7 | 1 ·9 | 0 ·4 |
| 0 36 44 ·75 | 0 ·26 | 0 ·13 | 3 9 52 ·3 | 1 ·7 | 1 ·9 | 0 ·4 |
| 0 36 38 ·43 | 0 ·27 | 0 ·13 | 3 9 10 ·6 | 1 ·8 | 1 ·9 | 0 ·4 |
| 0 36 31 ·99 | 0 ·27 | 0 ·13 | 3 8 28 ·1 | 1 ·8 | 1 ·9 | 0 ·4 |
| 0 36 25 ·43 | 0 ·28 | 0 ·13 | 3 7 44 ·8 | 1 ·8 | 1 ·9 | 0 ·4 |
| 0 36 18 ·74 | 0 ·28 | 0 ·13 | 3 7 0 ·8 | 1 ·8 | 1 ·9 | 0 ·4 |
| 0 36 11 ·94 | 0 ·29 | 0 ·13 | 3 6 16 ·1 | 1 ·9 | 1 ·9 | 0 ·4 |
| 0 36 5 ·02 | 0 ·29 | 0 ·13 | 3 5 30 ·7 | 1 ·9 | 1 ·9 | 0 ·4 |
| 0 35 58 ·00 | 0 ·30 | 0 ·13 | 3 4 44 ·6 | 1 ·9 | 1 ·9 | 0 ·4 |
| 0 35 50 ·86 | 0 ·30 | 0 ·13 | 3 3 57 ·8 | 2 ·0 | 1 ·9 | 0 ·4 |
| 0 35 43 ·62 | — 0 ·30 | 0 ·13 | N. 3 3 10 ·4 | — 2 ·0 | 1 ·9 | 0 ·4 |

# SEPTEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | R |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 35 47·83 | N.3 3 37·9 | 1·2825585 | 13 51·4 | 7 57 20·4 | S.0 42 16·4 | 1 |
| 2 | 0 35 40·52 | 3 2 50·1 | ·2823704 | 13 47·4 | 7 57 59·2 | 0 42 16·2 | |
| 3 | 0 35 33·11 | 3 2 1·6 | ·2821882 | 13 43·3 | 7 58 38·1 | 0 42 16·0 | |
| 4 | 0 35 25·60 | 3 1 12·6 | ·2820118 | 13 39·3 | 7 59 17·0 | 0 42 15·8 | |
| 5 | 0 35 17·99 | 3 0 23·0 | ·2818414 | 13 35·2 | 7 59 55·8 | 0 42 15·5 | |
| 6 | 0 35 10·29 | 2 59 32·8 | ·2816770 | 13 31·1 | 8 0 34·7 | 0 42 15·3 | |
| 7 | 0 35 2·50 | 2 58 42·1 | ·2815187 | 13 27·1 | 8 1 13·6 | 0 42 15·1 | |
| 8 | 0 34 54·62 | 2 57 50·9 | ·2813666 | 13 23·0 | 8 1 52·5 | 0 42 14·9 | |
| 9 | 0 34 46·66 | 2 56 59·2 | ·2812206 | 13 18·9 | 8 2 31·3 | 0 42 14·6 | |
| 10 | 0 34 38·62 | 2 56 7·0 | ·2810810 | 13 14·9 | 8 3 10·2 | 0 42 14·4 | |
| 11 | 0 34 30·51 | 2 55 14·3 | ·2809476 | 13 10·8 | 8 3 49·1 | 0 42 14·2 | |
| 12 | 0 34 22·32 | 2 54 21·2 | ·2808206 | 13 6·7 | 8 4 27·9 | 0 42 14·0 | |
| 13 | 0 34 14·06 | 2 53 27·7 | ·2807000 | 13 2·7 | 8 5 6·8 | 0 42 13·8 | |
| 14 | 0 34 5·74 | 2 52 33·7 | ·2805858 | 12 58·6 | 8 5 45·7 | 0 42 13·5 | |
| 15 | 0 33 57·36 | 2 51 39·4 | ·2804781 | 12 54·5 | 8 6 24·5 | 0 42 13·3 | |
| 16 | 0 33 48·91 | 2 50 44·8 | ·2803769 | 12 50·5 | 8 7 3·4 | 0 42 13·1 | |
| 17 | 0 33 40·41 | 2 49 49·9 | ·2802822 | 12 46·4 | 8 7 42·3 | 0 42 12·9 | |
| 18 | 0 33 31·86 | 2 48 54·6 | ·2801941 | 12 42·3 | 8 8 21·1 | 0 42 12·7 | |
| 19 | 0 33 23·25 | 2 47 59·1 | ·2801126 | 12 38·3 | 8 9 0·0 | 0 42 12·4 | |
| 20 | 0 33 14·60 | 2 47 3·3 | ·2800378 | 12 34·2 | 8 9 38·9 | 0 42 12·2 | |
| 21 | 0 33 5·91 | 2 46 7·2 | ·2799697 | 12 30·1 | 8 10 17·7 | 0 42 12·0 | |
| 22 | 0 32 57·17 | 2 45 11·0 | ·2799083 | 12 26·0 | 8 10 56·6 | 0 42 11·8 | |
| 23 | 0 32 48·40 | 2 44 14·5 | ·2798538 | 12 21·9 | 8 11 35·5 | 0 42 11·5 | |
| 24 | 0 32 39·59 | 2 43 17·9 | ·2798061 | 12 17·9 | 8 12 14·4 | 0 42 11·3 | |
| 25 | 0 32 30·76 | 2 42 21·1 | ·2797653 | 12 13·8 | 8 12 53·2 | 0 42 11·1 | |
| 26 | 0 32 21·90 | 2 41 24·2 | ·2797314 | 12 9·7 | 8 13 32·1 | 0 42 10·9 | |
| 27 | 0 32 13·02 | 2 40 27·3 | ·2797044 | 12 5·6 | 8 14 11·0 | 0 42 10·7 | |
| 28 | 0 32 4·12 | 2 39 30·2 | ·2796844 | 12 1·5 | 8 14 49·8 | 0 42 10·4 | |
| 29 | 0 31 55·21 | 2 38 33·1 | ·2796713 | 11 57·5 | 8 15 28·7 | 0 42 10·2 | |
| 30 | 0 31 46·29 | 2 37 36·0 | ·2796650 | 11 53·4 | 8 16 7·6 | 0 42 10·0 | |
| 31 | 0 31 37·37 | N.2 36 38·9 | 1·2796658 | 11 49·3 | 8 16 46·5 | S.0 42 9·8 | 1 |

# SEPTEMBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 35 43 ·62 | — 0 ·30 | 0 ·13 | N. 3 3 10 ·4 | — 2 ·0 | 1 ·9 | 0 ·4 |
| 0 35 36 ·28 | 0 ·31 | 0 ·13 | 3 2 22 ·3 | 2 ·0 | 1 ·9 | 0 ·4 |
| 0 35 28 ·83 | 0 ·31 | 0 ·13 | 3 1 33 ·7 | 2 ·0 | 1 ·9 | 0 ·4 |
| 0 35 21 ·28 | 0 ·32 | 0 ·13 | 3 0 44 ·4 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 35 13 ·64 | 0 ·32 | 0 ·13 | 2 59 54 ·6 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 35 5 ·91 | 0 ·32 | 0 ·13 | 2 59 4 ·3 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 34 58 ·09 | 0 ·33 | 0 ·13 | 2 58 13 ·5 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 34 50 ·19 | 0 ·33 | 0 ·13 | 2 57 22 ·1 | 2 ·2 | 1 ·9 | 0 ·4 |
| 0 34 42 ·21 | 0 ·33 | 0 ·13 | 2 56 30 ·3 | 2 ·2 | 1 ·9 | 0 ·4 |
| 0 34 34 ·15 | 0 ·34 | 0 ·14 | 2 55 38 ·0 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 34 26 ·02 | 0 ·34 | 0 ·14 | 2 54 45 ·2 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 34 17 ·82 | 0 ·34 | 0 ·14 | 2 53 52 ·0 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 34 9 ·55 | 0 ·35 | 0 ·14 | 2 52 58 ·4 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 34 1 ·22 | 0 ·35 | 0 ·14 | 2 52 4 ·4 | 2 ·3 | 2 ·0 | 0 ·4 |
| 0 33 52 ·82 | 0 ·35 | 0 ·14 | 2 51 10 ·1 | 2 ·3 | 2 ·0 | 0 ·4 |
| 0 33 44 ·37 | 0 ·35 | 0 ·14 | 2 50 15 ·4 | 2 ·3 | 2 ·0 | 0 ·4 |
| 0 33 35 ·87 | 0 ·36 | 0 ·14 | 2 49 20 ·4 | 2 ·3 | 2 ·0 | 0 ·4 |
| 0 33 27 ·31 | 0 ·36 | 0 ·14 | 2 48 25 ·2 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 33 18 ·70 | 0 ·36 | 0 ·14 | 2 47 29 ·7 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 33 10 ·05 | 0 ·36 | 0 ·14 | 2 46 33 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 33 1 ·36 | 0 ·36 | 0 ·14 | 2 45 37 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 32 52 ·63 | 0 ·36 | 0 ·14 | 2 44 41 ·7 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 32 43 ·86 | 0 ·37 | 0 ·14 | 2 43 45 ·3 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 32 35 ·07 | 0 ·37 | 0 ·14 | 2 42 48 ·8 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 32 26 ·25 | 0 ·37 | 0 ·14 | 2 41 52 ·2 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 32 17 ·40 | 0 ·37 | 0 ·14 | 2 40 55 ·4 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 32 8 ·54 | 0 ·37 | 0 ·14 | 2 39 58 ·5 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 31 59 ·66 | 0 ·37 | 0 ·14 | 2 39 1 ·6 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 31 50 ·77 | 0 ·37 | 0 ·14 | 2 38 4 ·7 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 31 41 ·87 | 0 ·37 | 0 ·14 | 2 37 7 ·7 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 31 32 ·97 | — 0 ·37 | 0 ·14 | N. 2 36 10 ·8 | — 2 ·4 | 2 ·0 | 0 ·5 |

# OCTOBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | N |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 31 37·37 | N.2 36 38·9 | 1·2796658 | 11 49·3 | 8 16 46·5 | S.0 42 9·8 | 1·30 |
| 2 | 0 31 28·44 | 2 35 41·8 | ·2796735 | 11 45·2 | 8 17 25·3 | 0 42 9·5 | ·30 |
| 3 | 0 31 19·52 | 2 34 44·8 | ·2796882 | 11 41·2 | 8 18 4·2 | 0 42 9·3 | ·30 |
| 4 | 0 31 10·60 | 2 33 47·9 | ·2797099 | 11 37·1 | 8 18 43·1 | 0 42 9·1 | ·30 |
| 5 | 0 31 1·69 | 2 32 51·1 | ·2797385 | 11 33·0 | 8 19 21·9 | 0 42 8·9 | ·30 |
| 6 | 0 30 52·80 | 2 31 54·4 | ·2797741 | 11 28·9 | 8 20 0·8 | 0 42 8·6 | ·30 |
| 7 | 0 30 43·92 | 2 30 57·8 | ·2798167 | 11 24·8 | 8 20 39·7 | 0 42 8·4 | ·30 |
| 8 | 0 30 35·07 | 2 30 1·5 | ·2798662 | 11 20·8 | 8 21 18·6 | 0 42 8·2 | ·30 |
| 9 | 0 30 26·25 | 2 29 5·3 | ·2799226 | 11 16·7 | 8 21 57·5 | 0 42 8·0 | ·30 |
| 10 | 0 30 17·45 | 2 28 9·4 | ·2799859 | 11 12·6 | 8 22 36·3 | 0 42 7·7 | ·30 |
| 11 | 0 30 8·69 | 2 27 13·7 | ·2800560 | 11 8·5 | 8 23 15·2 | 0 42 7·5 | ·30 |
| 12 | 0 29 59·97 | 2 26 18·3 | ·2801330 | 11 4·4 | 8 23 54·1 | 0 42 7·3 | ·30 |
| 13 | 0 29 51·29 | 2 25 23·2 | ·2802167 | 11 0·3 | 8 24 33·0 | 0 42 7·1 | ·30 |
| 14 | 0 29 42·65 | 2 24 28·5 | ·2803073 | 10 56·3 | 8 25 11·8 | 0 42 6·9 | ·30 |
| 15 | 0 29 34·06 | 2 23 34·1 | ·2804046 | 10 52·2 | 8 25 50·7 | 0 42 6·6 | ·30 |
| 16 | 0 29 25·52 | 2 22 40·0 | ·2805086 | 10 48·1 | 8 26 29·6 | 0 42 6·4 | ·30 |
| 17 | 0 29 17·03 | 2 21 46·3 | ·2806192 | 10 44·1 | 8 27 8·5 | 0 42 6·2 | ·30 |
| 18 | 0 29 8·61 | 2 20 53·1 | ·2807365 | 10 40·0 | 8 27 47·4 | 0 42 5·9 | ·30 |
| 19 | 0 29 0·24 | 2 20 0·3 | ·2808603 | 10 35·9 | 8 28 26·3 | 0 42 5·7 | ·30 |
| 20 | 0 28 51·94 | 2 19 7·9 | ·2809908 | 10 31·9 | 8 29 5·2 | 0 42 5·5 | ·30 |
| 21 | 0 28 43·71 | 2 18 16·1 | ·2811277 | 10 27·8 | 8 29 44·0 | 0 42 5·3 | ·30 |
| 22 | 0 28 35·55 | 2 17 24·7 | ·2812711 | 10 23·7 | 8 30 22·9 | 0 42 5·0 | ·30 |
| 23 | 0 28 27·47 | 2 16 33·8 | ·2814210 | 10 19·7 | 8 31 1·8 | 0 42 4·8 | ·30 |
| 24 | 0 28 19·47 | 2 15 43·5 | ·2815772 | 10 15·6 | 8 31 40·7 | 0 42 4·6 | ·30 |
| 25 | 0 28 11·55 | 2 14 53·8 | ·2817399 | 10 11·5 | 8 32 19·6 | 0 42 4·4 | ·30 |
| 26 | 0 28 3·71 | 2 14 4·6 | ·2819088 | 10 7·5 | 8 32 58·5 | 0 42 4·1 | ·30 |
| 27 | 0 27 55·97 | 2 13 16·1 | ·2820839 | 10 3·4 | 8 33 37·4 | 0 42 3·9 | ·30 |
| 28 | 0 27 48·32 | 2 12 28·2 | ·2822653 | 9 59·4 | 8 34 16·3 | 0 42 3·7 | ·30 |
| 29 | 0 27 40·77 | 2 11 41·0 | ·2824528 | 9 55·3 | 8 34 55·2 | 0 42 3·5 | ·30 |
| 30 | 0 27 33·31 | 2 10 54·5 | ·2826463 | 9 51·2 | 8 35 34·1 | 0 42 3·2 | ·30 |
| 31 | 0 27 25·96 | 2 10 8·7 | ·2828457 | 9 47·2 | 8 36 13·0 | 0 42 3·0 | ·30 |
| 32 | 0 27 18·72 | N.2 9 23·6 | 1·2830511 | 9 43·1 | 8 36 51·9 | S.0 42 2·8 | 1·30 |

# OCTOBER, 1845.

At Transit over the Meridian of Greenwich.

| *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|
| h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 0 31 32 ·97 | — 0 ·37 | 0 ·14 | N. 2 36 10 ·8 | — 2 ·4 | 2 ·0 | 0 ·5 |
| 0 31 24 ·07 | 0 ·37 | 0 ·14 | 2 35 13 ·9 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 31 15 ·17 | 0 ·37 | 0 ·14 | 2 34 17 ·1 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 31 6 ·28 | 0 ·37 | 0 ·14 | 2 33 20 ·4 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 30 57 ·41 | 0 ·37 | 0 ·14 | 2 32 23 ·8 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 30 48 ·55 | 0 ·37 | 0 ·14 | 2 31 27 ·3 | 2 ·4 | 2 ·0 | 0 ·5 |
| 0 30 39 ·71 | 0 ·37 | 0 ·14 | 2 30 31 ·0 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 30 30 ·90 | 0 ·37 | 0 ·14 | 2 29 34 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 30 22 ·11 | 0 ·37 | 0 ·14 | 2 28 39 ·0 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 30 13 ·35 | 0 ·36 | 0 ·14 | 2 27 43 ·3 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 30 4 ·63 | 0 ·36 | 0 ·14 | 2 26 47 ·9 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 29 55 ·95 | 0 ·36 | 0 ·14 | 2 25 52 ·8 | 2 ·3 | 2 ·0 | 0 ·5 |
| 0 29 47 ·32 | 0 ·36 | 0 ·14 | 2 24 58 ·1 | 2 ·3 | 2 ·0 | 0 ·4 |
| 0 29 38 ·73 | 0 ·36 | 0 ·14 | 2 24 3 ·6 | 2 ·3 | 2 ·0 | 0 ·4 |
| 0 29 30 ·19 | 0 ·35 | 0 ·14 | 2 23 9 ·5 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 29 21 ·69 | 0 ·35 | 0 ·14 | 2 22 15 ·8 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 29 13 ·25 | 0 ·35 | 0 ·14 | 2 21 22 ·5 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 29 4 ·88 | 0 ·35 | 0 ·14 | 2 20 29 ·6 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 28 56 ·57 | 0 ·34 | 0 ·14 | 2 19 37 ·1 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 28 48 ·32 | 0 ·34 | 0 ·14 | 2 18 45 ·1 | 2 ·2 | 2 ·0 | 0 ·4 |
| 0 28 40 ·14 | 0 ·34 | 0 ·13 | 2 17 53 ·6 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 28 32 ·04 | 0 ·34 | 0 ·13 | 2 17 2 ·6 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 28 24 ·02 | 0 ·33 | 0 ·13 | 2 16 12 ·1 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 28 16 ·07 | 0 ·33 | 0 ·13 | 2 15 22 ·2 | 2 ·1 | 1 ·9 | 0 ·4 |
| 0 28 8 ·21 | 0 ·33 | 0 ·13 | 2 14 32 ·8 | 2 ·0 | 1 ·9 | 0 ·4 |
| 0 28 0 ·44 | 0 ·32 | 0 ·13 | 2 13 44 ·0 | 2 ·0 | 1 ·9 | 0 ·4 |
| 0 27 52 ·76 | 0 ·32 | 0 ·13 | 2 12 55 ·9 | 2 ·0 | 1 ·9 | 0 ·4 |
| 0 27 45 ·17 | 0 ·31 | 0 ·13 | 2 12 8 ·5 | 2 ·0 | 1 ·9 | 0 ·4 |
| 0 27 37 ·67 | 0 ·31 | 0 ·13 | 2 11 21 ·7 | 1 ·9 | 1 ·9 | 0 ·4 |
| 0 27 30 ·28 | 0 ·31 | 0 ·13 | 2 10 35 ·6 | 1 ·9 | 1 ·9 | 0 ·4 |
| 0 27 23 ·00 | 0 ·30 | 0 ·13 | 2 9 50 ·2 | 1 ·9 | 1 ·9 | 0 ·4 |
| 0 27 15 ·82 | — 0 ·30 | 0 ·13 | N. 2 9 5 ·6 | — 1 ·8 | 1 ·9 | 0 ·4 |

# NOVEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | Log. Rad. |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | *Noon.* |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 27 18·72 | N.2 9 23·6 | 1·2830511 | 9 43·1 | 8 36 51·9 | S.0 42 2·8 | 1·30 |
| 2 | 0 27 11·60 | 2 8 39·3 | ·2832624 | 9 39·1 | 8 37 30·8 | 0 42 2·6 | ·30 |
| 3 | 0 27 4·58 | 2 7 55·8 | ·2834794 | 9 35·0 | 8 38 9·7 | 0 42 2·3 | ·30 |
| 4 | 0 26 57·68 | 2 7 13·0 | ·2837020 | 9 31·0 | 8 38 48·6 | 0 42 2·1 | ·30 |
| 5 | 0 26 50·91 | 2 6 31·1 | ·2839303 | 9 26·9 | 8 39 27·5 | 0 42 1·9 | ·30 |
| 6 | 0 26 44·26 | 2 5 50·0 | ·2841640 | 9 22·9 | 8 40 6·4 | 0 42 1·6 | ·30 |
| 7 | 0 26 37·73 | 2 5 9·7 | ·2844031 | 9 18·9 | 8 40 45·4 | 0 42 1·4 | ·30 |
| 8 | 0 26 31·33 | 2 4 30·2 | ·2846475 | 9 14·8 | 8 41 24·3 | 0 42 1·2 | ·30 |
| 9 | 0 26 25·07 | 2 3 51·7 | ·2848972 | 9 10·8 | 8 42 3·2 | 0 42 1·0 | ·30 |
| 10 | 0 26 18·94 | 2 3 14·1 | ·2851519 | 9 6·8 | 8 42 42·1 | 0 42 0·7 | ·30 |
| 11 | 0 26 12·95 | 2 2 37·4 | ·2854116 | 9 2·7 | 8 43 21·0 | 0 42 0·5 | ·30 |
| 12 | 0 26 7·09 | 2 2 1·6 | ·2856762 | 8 58·7 | 8 43 59·9 | 0 42 0·3 | ·30 |
| 13 | 0 26 1·38 | 2 1 26·7 | ·2859457 | 8 54·7 | 8 44 38·9 | 0 42 0·1 | ·30 |
| 14 | 0 25 55·81 | 2 0 52·8 | ·2862199 | 8 50·7 | 8 45 17·8 | 0 41 59·8 | ·30 |
| 15 | 0 25 50·39 | 2 0 19·9 | ·2864987 | 8 46·6 | 8 45 56·7 | 0 41 59·6 | ·30 |
| 16 | 0 25 45·12 | 1 59 47·9 | ·2867821 | 8 42·6 | 8 46 35·6 | 0 41 59·4 | ·30 |
| 17 | 0 25 39·99 | 1 59 17·0 | ·2870700 | 8 38·6 | 8 47 14·6 | 0 41 59·1 | ·30 |
| 18 | 0 25 35·02 | 1 58 47·0 | ·2873623 | 8 34·6 | 8 47 53·5 | 0 41 58·9 | ·30 |
| 19 | 0 25 30·20 | 1 58 18·1 | ·2876588 | 8 30·6 | 8 48 32·5 | 0 41 58·7 | ·30 |
| 20 | 0 25 25·54 | 1 57 50·2 | ·2879595 | 8 26·6 | 8 49 11·4 | 0 41 58·5 | ·30 |
| 21 | 0 25 21·04 | 1 57 23·4 | ·2882643 | 8 22·6 | 8 49 50·4 | 0 41 58·2 | ·30 |
| 22 | 0 25 16·70 | 1 56 57·6 | ·2885731 | 8 18·6 | 8 50 29·3 | 0 41 58·0 | ·30 |
| 23 | 0 25 12·53 | 1 56 33·0 | ·2888857 | 8 14·6 | 8 51 8·3 | 0 41 57·8 | ·30 |
| 24 | 0 25 8·52 | 1 56 9·4 | ·2892021 | 8 10·6 | 8 51 47·2 | 0 41 57·6 | ·30 |
| 25 | 0 25 4·68 | 1 55 46·9 | ·2895221 | 8 6·6 | 8 52 26·2 | 0 41 57·3 | ·30 |
| 26 | 0 25 1·00 | 1 55 25·5 | ·2898457 | 8 2·6 | 8 53 5·1 | 0 41 57·1 | ·30 |
| 27 | 0 24 57·50 | 1 55 5·3 | ·2901727 | 7 58·6 | 8 53 44·1 | 0 41 56·9 | ·30 |
| 28 | 0 24 54·17 | 1 54 46·2 | ·2905030 | 7 54·6 | 8 54 23·0 | 0 41 56·7 | ·30 |
| 29 | 0 24 51·02 | 1 54 28·3 | ·2908366 | 7 50·6 | 8 55 2·0 | 0 41 56·4 | ·30 |
| 30 | 0 24 48·04 | 1 54 11·5 | ·2911732 | 7 46·7 | 8 55 40·9 | 0 41 56·2 | ·30 |
| | [illegible]4 45·24 | N.1 53 55·9 | 1·2915128 | 7 42·7 | 8 56 19·9 | S.0 41 56·0 | 1·30 |

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# NOVEMBER, 1845.

At Transit over the Meridian of Greenwich.

| Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 0 27 15 ·82 | — 0 ·30 | 0 ·13 | N.2 9 5 ·6 | — 1 ·8 | 1 ·9 | 0 ·4 |
| 2 | 0 27 8 ·76 | 0 ·29 | 0 ·13 | 2 8 21 ·7 | 1 ·8 | 1 ·9 | 0 ·4 |
| 3 | 0 27 1 ·81 | 0 ·29 | 0 ·13 | 2 7 38 ·6 | 1 ·8 | 1 ·9 | 0 ·4 |
| 4 | 0 26 54 ·98 | 0 ·28 | 0 ·13 | 2 6 56 ·3 | 1 ·7 | 1 ·9 | 0 ·4 |
| 5 | 0 26 48 ·27 | 0 ·28 | 0 ·13 | 2 6 14 ·8 | 1 ·7 | 1 ·9 | 0 ·4 |
| 6 | 0 26 41 ·69 | 0 ·27 | 0 ·13 | 2 5 34 ·1 | 1 ·7 | 1 ·9 | 0 ·4 |
| 7 | 0 26 35 ·23 | 0 ·27 | 0 ·13 | 2 4 54 ·3 | 1 ·6 | 1 ·9 | 0 ·4 |
| 8 | 0 26 28 ·90 | 0 ·26 | 0 ·13 | 2 4 15 ·3 | 1 ·6 | 1 ·9 | 0 ·4 |
| 9 | 0 26 22 ·71 | 0 ·26 | 0 ·13 | 2 3 37 ·2 | 1 ·6 | 1 ·9 | 0 ·4 |
| 10 | 0 26 16 ·65 | 0 ·25 | 0 ·13 | 2 3 0 ·0 | 1 ·5 | 1 ·9 | 0 ·4 |
| 11 | 0 26 10 ·72 | 0 ·24 | 0 ·13 | 2 2 23 ·8 | 1 ·5 | 1 ·9 | 0 ·4 |
| 12 | 0 26 4 ·94 | 0 ·24 | 0 ·13 | 2 1 48 ·4 | 1 ·5 | 1 ·9 | 0 ·4 |
| 13 | 0 25 59 ·30 | 0 ·23 | 0 ·13 | 2 1 14 ·0 | 1 ·4 | 1 ·9 | 0 ·4 |
| 14 | 0 25 53 ·80 | 0 ·23 | 0 ·13 | 2 0 40 ·6 | 1 ·4 | 1 ·9 | 0 ·4 |
| 15 | 0 25 48 ·45 | 0 ·22 | 0 ·13 | 2 0 8 ·1 | 1 ·3 | 1 ·9 | 0 ·4 |
| 16 | 0 25 43 ·24 | 0 ·21 | 0 ·13 | 1 59 36 ·6 | 1 ·3 | 1 ·9 | 0 ·4 |
| 17 | 0 25 38 ·18 | 0 ·21 | 0 ·13 | 1 59 6 ·1 | 1 ·3 | 1 ·9 | 0 ·4 |
| 18 | 0 25 33 ·28 | 0 ·20 | 0 ·13 | 1 58 36 ·6 | 1 ·2 | 1 ·9 | 0 ·4 |
| 19 | 0 25 28 ·53 | 0 ·19 | 0 ·13 | 1 58 8 ·1 | 1 ·2 | 1 ·9 | 0 ·4 |
| 20 | 0 25 23 ·94 | 0 ·19 | 0 ·13 | 1 57 40 ·7 | 1 ·1 | 1 ·9 | 0 ·4 |
| 21 | 0 25 19 ·51 | 0 ·18 | 0 ·13 | 1 57 14 ·3 | 1 ·1 | 1 ·9 | 0 ·4 |
| 22 | 0 25 15 ·24 | 0 ·17 | 0 ·13 | 1 56 49 ·0 | 1 ·0 | 1 ·9 | 0 ·4 |
| 23 | 0 25 11 ·13 | 0 ·17 | 0 ·13 | 1 56 24 ·7 | 1 ·0 | 1 ·9 | 0 ·4 |
| 24 | 0 25 7 ·19 | 0 ·16 | 0 ·13 | 1 56 1 ·6 | 0 ·9 | 1 ·9 | 0 ·4 |
| 25 | 0 25 3 ·42 | 0 ·15 | 0 ·13 | 1 55 39 ·5 | 0 ·9 | 1 ·9 | 0 ·4 |
| 26 | 0 24 59 ·81 | 0 ·15 | 0 ·13 | 1 55 18 ·6 | 0 ·8 | 1 ·9 | 0 ·4 |
| 27 | 0 24 56 ·37 | 0 ·14 | 0 ·13 | 1 54 58 ·8 | 0 ·8 | 1 ·9 | 0 ·4 |
| 28 | 0 24 53 ·11 | 0 ·13 | 0 ·13 | 1 54 40 ·2 | 0 ·8 | 1 ·9 | 0 ·4 |
| 29 | 0 24 50 ·02 | 0 ·12 | 0 ·13 | 1 54 22 ·7 | 0 ·7 | 1 ·9 | 0 ·4 |
| 30 | 0 24 47 ·11 | 0 ·12 | 0 ·13 | 1 54 6 ·3 | 0 ·7 | 1 ·9 | 0 ·4 |
| 31 | 0 24 44 ·38 | — 0 ·11 | 0 ·13 | N.1 53 51 ·1 | — 0 ·6 | 1 ·9 | 0 ·4 |

# DECEMBER, 1845.

## MEAN TIME.

| Day of the Month. | Geocentric. | | | | Heliocentric. | | |
|---|---|---|---|---|---|---|---|
| | *Apparent* Right Ascension. | *Apparent* Declination. | Log. of True Dist. from the Earth. | Meridian Passage. | Longitude. | Latitude. | I Ra |
| | *Noon.* | *Noon.* | *Noon.* | | *Noon.* | *Noon.* | |
| | h m s | ° ′ ″ | | h m | ° ′ ″ | ° ′ ″ | |
| 1 | 0 24 45·24 | N.1 53 55·9 | 1·2915128 | 7 42·7 | 8 56 19·9 | S. 0 41 56·0 | 1·3 |
| 2 | 0 24 42·62 | 1 53 41·5 | ·2918552 | 7 38·7 | 8 56 58·9 | 0 41 55·8 | ·3 |
| 3 | 0 24 40·18 | 1 53 28·2 | ·2922004 | 7 34·7 | 8 57 37·8 | 0 41 55·5 | ·3 |
| 4 | 0 24 37·92 | 1 53 16·1 | ·2925480 | 7 30·8 | 8 58 16·8 | 0 41 55·3 | ·3 |
| 5 | 0 24 35·85 | 1 53 5·2 | ·2928981 | 7 26·8 | 8 58 55·7 | 0 41 55·1 | ·3 |
| 6 | 0 24 33·97 | 1 52 55·5 | ·2932505 | 7 22·8 | 8 59 34·7 | 0 41 54·8 | ·3 |
| 7 | 0 24 32·27 | 1 52 47·0 | ·2936052 | 7 18·9 | 9 0 13·7 | 0 41 54·6 | ·3 |
| 8 | 0 24 30·75 | 1 52 39·8 | ·2939619 | 7 14·9 | 9 0 52·6 | 0 41 54·4 | ·3 |
| 9 | 0 24 29·42 | 1 52 33·7 | ·2943205 | 7 11·0 | 9 1 31·6 | 0 41 54·2 | ·3 |
| 10 | 0 24 28·28 | 1 52 28·9 | ·2946810 | 7 7·0 | 9 2 10·6 | 0 41 53·9 | ·3 |
| 11 | 0 24 27·32 | 1 52 25·2 | ·2950433 | 7 3·1 | 9 2 49·5 | 0 41 53·7 | ·3 |
| 12 | 0 24 26·55 | 1 52 22·8 | ·2954072 | 6 59·1 | 9 3 28·5 | 0 41 53·5 | ·3 |
| 13 | 0 24 25·96 | 1 52 21·7 | ·2957726 | 6 5 ·2 | 9 4 7·5 | 0 41 53·3 | ·3 |
| 14 | 0 24 25·57 | 1 52 21·7 | ·2961393 | 6 51·2 | 9 4 46·4 | 0 41 53·0 | ·3 |
| 15 | 0 24 25·36 | 1 52 23·0 | ·2965074 | 6 47·3 | 9 5 25·4 | 0 41 52·8 | ·3 |
| 16 | 0 24 25·34 | 1 52 25·5 | ·2968766 | 6 43·4 | 9 6 4·4 | 0 41 52·6 | ·3 |
| 17 | 0 24 25·51 | 1 52 29·2 | ·2972469 | 6 39·4 | 9 6 43·3 | 0 41 52·3 | ·3 |
| 18 | 0 24 25·87 | 1 52 34·2 | ·2976182 | 6 35·5 | 9 7 22·3 | 0 41 52·1 | ·3 |
| 19 | 0 24 26·43 | 1 52 40·3 | ·2979903 | 6 31·6 | 9 8 1·3 | 0 41 51·9 | ·3 |
| 20 | 0 24 27·17 | 1 52 47·7 | ·2983631 | 6 27·7 | 9 8 40·2 | 0 41 51·7 | ·3 |
| 21 | 0 24 28·10 | 1 52 56·4 | ·2987365 | 6 23·8 | 9 9 19·2 | 0 41 51·4 | ·3 |
| 22 | 0 24 29·22 | 1 53 6·3 | ·2991105 | 6 19·9 | 9 9 58·2 | 0 41 51·2 | ·3 |
| 23 | 0 24 30·54 | 1 53 17·4 | ·2994848 | 6 16·0 | 9 10 37·1 | 0 41 51·0 | ·3 |
| 24 | 0 24 32·04 | 1 53 29·7 | ·2998594 | 6 12·0 | 9 11 16·1 | 0 41 50·7 | ·3 |
| 25 | 0 24 33·74 | 1 53 43·3 | ·3002341 | 6 8·1 | 9 11 55·1 | 0 41 50·5 | ·3 |
| 26 | 0 24 35·62 | 1 53 58·1 | ·3006089 | 6 4·2 | 9 12 34·0 | 0 41 50·3 | ·3 |
| 27 | 0 24 37·70 | 1 54 14·2 | ·3009836 | 6 0·3 | 9 13 13·0 | 0 41 50·1 | ·3 |
| 28 | 0 24 39·97 | 1 54 31·5 | ·3013580 | 5 56·4 | 9 13 52·0 | 0 41 49·8 | ·3 |
| 29 | 0 24 42·43 | 1 54 50·0 | ·3017320 | 5 52·6 | 9 14 30·9 | 0 41 49·6 | ·3 |
| 30 | 0 24 45·08 | 1 55 9·7 | ·3021056 | 5 48·7 | 9 15 9·9 | 0 41 49·4 | ·3 |
| 31 | 0 24 47·91 | 1 55 30·7 | ·3024785 | 5 44·8 | 9 15 48·9 | 0 41 49·1 | ·3 |
| 32 | 0 24 50·94 | N.1 55 52·8 | 1·3028507 | 5 40·9 | 9 16 27·9 | S. 0 41 48·9 | 1·3 |

# DECEMBER, 1845.

At Transit over the Meridian of Greenwich.

| Day of Month. | *Apparent* Right Ascension. | Variation of Right Asc. in 1 Hour of Long. | Sid. Time of Sem. pass. Mer. | *Apparent* Declination. | Variation of Declination in 1 Hour of Long. | Semi-diameter. | Hor. Par. |
|---|---|---|---|---|---|---|---|
| | h m s | s | s | ° ′ ″ | ″ | ″ | ″ |
| 1 | 0 24 44 ·38 | — 0 ·11 | 0 ·13 | N. 1 53 51 ·1 | — 0 ·6 | 1 ·9 | 0 ·4 |
| 2 | 0 24 41 ·82 | 0 ·10 | 0 ·13 | 1 53 37 ·1 | 0 ·6 | 1 ·9 | 0 ·4 |
| 3 | 0 24 39 ·45 | 0 ·09 | 0 ·13 | 1 53 24 ·3 | 0 ·5 | 1 ·9 | 0 ·4 |
| 4 | 0 24 37 ·26 | 0 ·09 | 0 ·13 | 1 53 12 ·6 | 0 ·5 | 1 ·9 | 0 ·4 |
| 5 | 0 24 35 ·25 | 0 ·08 | 0 ·13 | 1 53 2 ·1 | 0 ·4 | 1 ·9 | 0 ·4 |
| 6 | 0 24 33 ·42 | 0 ·07 | 0 ·13 | 1 52 52 ·8 | 0 ·4 | 1 ·9 | 0 ·4 |
| 7 | 0 24 31 ·78 | 0 ·06 | 0 ·13 | 1 52 44 ·7 | 0 ·3 | 1 ·9 | 0 ·4 |
| 8 | 0 24 30 ·33 | 0 ·06 | 0 ·13 | 1 52 37 ·8 | 0 ·3 | 1 ·9 | 0 ·4 |
| 9 | 0 24 29 ·06 | 0 ·05 | 0 ·13 | 1 52 32 ·1 | 0 ·2 | 1 ·9 | 0 ·4 |
| 10 | 0 24 27 ·97 | 0 ·04 | 0 ·13 | 1 52 27 ·7 | 0 ·2 | 1 ·9 | 0 ·4 |
| 11 | 0 24 27 ·07 | 0 ·03 | 0 ·13 | 1 52 24 ·4 | 0 ·1 | 1 ·9 | 0 ·4 |
| 12 | 0 24 26 ·36 | 0 ·03 | 0 ·13 | 1 52 22 ·4 | — 0 ·1 | 1 ·9 | 0 ·4 |
| 13 | 0 24 25 ·83 | 0 ·02 | 0 ·13 | 1 52 21 ·6 | 0 ·0 | 1 ·9 | 0 ·4 |
| 14 | 0 24 25 ·49 | — 0 ·01 | 0 ·13 | 1 52 22 ·0 | 0 ·0 | 1 ·9 | 0 ·4 |
| 15 | 0 24 25 ·34 | 0 ·00 | 0 ·13 | 1 52 23 ·6 | + 0 ·1 | 1 ·9 | 0 ·4 |
| 16 | 0 24 25 ·37 | + 0 ·01 | 0 ·13 | 1 52 26 ·4 | 0 ·1 | 1 ·9 | 0 ·4 |
| 17 | 0 24 25 ·59 | 0 ·01 | 0 ·13 | 1 52 30 ·5 | 0 ·2 | 1 ·9 | 0 ·4 |
| 18 | 0 24 26 ·01 | 0 ·02 | 0 ·13 | 1 52 35 ·8 | 0 ·2 | 1 ·9 | 0 ·4 |
| 19 | 0 24 26 ·61 | 0 ·03 | 0 ·13 | 1 52 42 ·3 | 0 ·3 | 1 ·9 | 0 ·4 |
| 20 | 0 24 27 ·40 | 0 ·04 | 0 ·13 | 1 52 50 ·0 | 0 ·3 | 1 ·9 | 0 ·4 |
| 21 | 0 24 28 ·38 | 0 ·04 | 0 ·13 | 1 52 58 ·9 | 0 ·4 | 1 ·9 | 0 ·4 |
| 22 | 0 24 29 ·55 | 0 ·05 | 0 ·13 | 1 53 9 ·1 | 0 ·5 | 1 ·9 | 0 ·4 |
| 23 | 0 24 30 ·91 | 0 ·06 | 0 ·13 | 1 53 20 ·5 | 0 ·5 | 1 ·9 | 0 ·4 |
| 24 | 0 24 32 ·46 | 0 ·07 | 0 ·13 | 1 53 33 ·2 | 0 ·6 | 1 ·9 | 0 ·4 |
| 25 | 0 24 34 ·20 | 0 ·08 | 0 ·13 | 1 53 47 ·0 | 0 ·6 | 1 ·9 | 0 ·4 |
| 26 | 0 24 36 ·13 | 0 ·08 | 0 ·13 | 1 54 2 ·1 | 0 ·7 | 1 ·9 | 0 ·4 |
| 27 | 0 24 38 ·25 | 0 ·09 | 0 ·13 | 1 54 18 ·4 | 0 ·7 | 1 ·9 | 0 ·4 |
| 28 | 0 24 40 ·56 | 0 ·10 | 0 ·13 | 1 54 36 ·0 | 0 ·8 | 1 ·9 | 0 ·4 |
| 29 | 0 24 43 ·06 | 0 ·11 | 0 ·13 | 1 54 54 ·7 | 0 ·8 | 1 ·9 | 0 ·4 |
| 30 | 0 24 45 ·75 | 0 ·12 | 0 ·13 | 1 55 14 ·7 | 0 ·9 | 1 ·9 | 0 ·4 |
| 31 | 0 24 48 ·62 | 0 ·12 | 0 ·13 | 1 55 35 ·9 | 0 ·9 | 1 ·9 | 0 ·4 |
| 32 | 0 24 51 ·68 | + 0 ·13 | 0 ·13 | N. 1 55 58 ·3 | + 1 ·0 | 1 ·9 | 0 ·4 |

## MEAN PLACES OF 100 PRINCIPAL FIXED STARS, FOR JANUARY 1, 1845.

| Star's Name. | Mag. | Right Ascension. | Annual Var. | Declination. | Annual |
|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ |
| α ANDROMEDÆ - - - | 1 | 0 0 23 ·186 | + 3 ·0718 | N.28 14 5 ·35 | +20 |
| γ PEGASI (*Algenib*) | 2.3 | 0 5 15 ·613 | 3 ·0783 | N.14 19 17 ·75 | 20 |
| β Hydri - - - - - - | 3 | 0 17 30 ·861 | 3 ·3064* | S.78 7 44 ·39 | 19 |
| α CASSIOPEÆ - - - - | 3 | 0 31 44 ·953 | 3 ·3412 | N.55 41 11 ·21 | 19 |
| β Ceti - - - - - - - | 2.3 | 0 35 48 ·340 | + 2 ·9995 | S.18 50 18 ·82 | +19 |
| α URS. MIN. (*Polaris*) | 2.3 | 1 3 35 ·200 | 17 ·0267* | N.88 28 58 ·59 | 19 |
| θ¹ Ceti - - - - - - - | 3 | 1 16 16 ·690 | 3 ·0015 | S. 8 59 4 ·88 | 18 |
| α Eridani (*Achernar*) | 1 | 1 31 56 ·057 | 2 ·2341 | S.58 1 32 ·80 | 18 |
| α ARIETIS - - - - - | 3 | 1 58 26 ·846 | + 3 ·3473 | N.22 43 36 ·42 | +17 |
| γ Ceti - - - - - - - | 3 | 2 35 16 ·524 | 3 ·1084 | N. 2 34 45 ·54 | 15 |
| α CETI - - - - - - - | 2.3 | 2 54 10 ·946 | 3 ·1265 | N. 3 28 41 ·17 | 14 |
| α PERSEI - - - - - | 2.3 | 3 13 17 ·171 | 4 ·2319 | N.49 18 14 ·86 | 13 |
| η Tauri - - - - - - - | 3 | 3 38 16 ·835 | + 3 ·5471 | N.23 37 16 ·10 | +11 |
| γ¹ Eridani - - - - - | 2.3 | 3 50 47 ·971 | 2 ·7897 | S.13 57 12 ·22 | 10 |
| α TAURI (*Aldebaran*) | 1 | 4 27 1 ·976 | 3 ·4273 | N.16 11 33 ·48 | 7 |
| α AURIGÆ (*Capella*) | 1 | 5 5 14 ·909 | 4 ·4080 | N.45 50 1 ·82 | 4 |
| β ORIONIS (*Rigel*) | 1 | 5 7 5 ·505 | + 2 ·8786 | S. 8 23 7 ·92 | + 4 |
| β TAURI - - - - - - | 2 | 5 16 29 ·879 | 3 ·7827 | N.28 28 13 ·71 | 3 |
| δ ORIONIS - - - - - | 2 | 5 24 5 ·368 | 3 ·0608 | S. 0 25 7 ·99 | 3 |
| α Leporis - - - - - | 3.4 | 5 25 53 ·764 | 2 ·6425 | S.17 56 15 ·74 | 2 |
| ε ORIONIS - - - - - | 2.3 | 5 28 21 ·021 | + 3 ·0404 | S. 1 18 20 ·29 | + 2 |
| α Columbæ - - - - - | 2 | 5 34 2 ·362 | 2 ·1691 | S.34 9 39 ·21 | 2 |
| α ORIONIS - - - - - | 1 | 5 46 46 ·945 | 3 ·2433 | N. 7 22 21 ·16 | + 1 |
| μ Geminorum - - - - | 3 | 6 13 34 ·996 | 3 ·6257 | N.22 35 14 ·36 | − 1 |
| α Argus - (*Canopus*) | 1 | 6 20 30 ·817 | + 1 ·3279 | S.52 36 47 ·38 | − 1 |
| 51 (Hev.) Cephei - - | 6 | 6 25 59 ·478 | 30 ·8085 | N.87 15 33 ·49 | 2 |
| α CANIS MAJ. (*Sirius*) | 1 | 6 38 19 ·237 | 2 ·6459* | S.16 30 28 ·35 | 4 |
| ε Canis Majoris - - - | 2.3 | 6 52 32 ·084 | 2 ·3557 | S.28 45 54 ·82 | 4 |
| δ Geminorum - - - - | 3.4 | 7 10 51 ·706 | + 3 ·5918 | N.22 15 43 ·57 | − 6 |
| α² GEMINOR. (*Castor*) | 3 | 7 24 42 ·209 | 3 ·8562 | N.32 13 20 ·18 | 7 |
| α CAN. MIN. (*Procyon*) | 1.2 | 7 31 11 ·092 | 3 ·1445* | N. 5 37 3 ·70 | 8 |
| β GEMINOR. (*Pollux*) | 2 | 7 35 49 ·470 | 3 ·6830* | N.28 23 42 ·21 | 8 |
| 15 Argus - - - - - - | 3.4 | 8 0 56 ·672 | + 2 ·5596 | S.23 51 40 ·84 | −10 |
| ε Hydræ - - - - - - | 4 | 8 38 33 ·958 | 3 ·1966 | N. 6 59 1 ·30 | 12 |
| ι Ursæ Majoris - - - | 3.4 | 8 48 33 ·961 | 4 ·1265* | N.48 38 45 ·81 | 13 |
| ι Argus - - - - - - | 2 | 9 12 56 ·582 | 1 ·6100 | S.58 37 34 ·82 | 14 |
| α HYDRÆ - - - - - | 2 | 9 19 58 ·220 | + 2 ·9499 | S. 7 59 23 ·68 | −15 |
| θ Ursæ Majoris - - - | 3 | 9 22 27 ·402 | 4 ·0510* | N.52 22 47 ·19 | 16 |
| ε Leonis - - - - - - | 3 | 9 37 2 ·672 | 3 ·4260 | N.24 29 5 ·74 | 16 |
| α LEONIS (*Regulus*) | 1 | 10 0 6 ·840 | + 3 ·2212 | N.12 43 20 ·33 | −17 |

## MEAN PLACES OF 100 PRINCIPAL FIXED STARS, FOR JANUARY 1, 1845.

| 's Name. | Mag. | Right Ascension. | Annual Var. | Declination. | Annual Var. |
|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ |
| - - - - - - | 2 | 10 39 3 ·918 | + 2 ·3049 | S. 58 52 15 ·44 | —18 ·818 |
| Majoris - - | 1.2 | 10 54 6 ·936 | 3 ·8010 | N.62 35 11 ·04 | 19 ·233 |
| s - - - - - | 3 | 11 5 51 ·390 | 3 ·1929 | N.21 22 19 ·36 | 19 ·499 |
| et Crateris - | 3.4 | 11 11 35 ·717 | 3 ·0010 | S. 13 56 27 ·24 | 19 ·610 |
| s - - - - - | 2.3 | 11 41 9 ·001 | + 3 ·0654* | N.15 26 18 ·11 | —19 ·988 |
| Majoris - - | 2 | 11 45 39 ·031 | 3 ·1878 | N.54 33 23 ·19 | 20 ·016 |
| eleontis - - - | 5 | 12 9 23 ·554 | 3 ·3392 | S. 78 27 6 ·11 | 20 ·038 |
| - - - - - - | 1 | 12 18 1 ·646 | 3 ·2704 | S. 62 14 19 ·75 | 19 ·993 |
| - - - - - - | 2.3 | 12 26 15 ·331 | + 3 ·1340 | S. 22 32 20 ·01 | —19 ·924 |
| Venaticorum | 2.3 | 12 48 46 ·166 | 2 ·8405 | N.39 9 23 ·78 | 19 ·602 |
| is - (*Spica*) | 1 | 13 17 2 ·082 | 3 ·1511 | S. 10 21 1 ·86 | 18 ·932 |
| Majoris - - | 2.3 | 13 41 25 ·541 | 2 ·3526* | N.50 5 19 ·57 | 18 ·122 |
| - - - - - - | 3 | 13 47 18 ·280 | + 2 ·8606 | N.19 10 38 ·93 | —17 ·896 |
| ri - - - - - | 1 | 13 52 56 ·650 | 4 ·1500 | S. 59 37 16 ·26 | 17 ·667 |
| (*Arcturus*) | 1 | 14 8 35 ·633 | 2 ·7335* | N.19 59 31 ·01 | 18 ·938* |
| ri - - - - - | 1 | 14 29 7 ·909 | 4 ·0156* | S. 60 11 21 ·88 | 15 ·120* |
| - - - - - | 3 | 14 38 13 ·084 | + 2 ·6229 | N.27 43 50 ·68 | —15 ·462 |
| - - - - - - | 3 | 14 42 18 ·822 | + 3 ·3100 | S. 15 23 38 ·29 | 15 ·231 |
| Minoris - - | 3 | 14 51 13 ·469 | — 0 ·2702 | N.74 47 20 ·30 | 14 ·714 |
| - - - - - - | 2.3 | 15 8 40 ·373 | + 3 ·2225 | S. 8 48 24 ·90 | 13 ·633 |
| e Borealis - | 2 | 15 28 7 ·555 | + 2 ·5279 | N.27 14 23 ·41 | —12 ·337 |
| ntis - - - - | 2.3 | 15 36 38 ·139 | + 2 ·9391 | N. 6 55 1 ·62 | 11 ·741 |
| Minoris - - - | 4 | 15 49 43 ·548 | — 2 ·3541 | N.78 16 6 ·23 | 10 ·798 |
| - - - - - | 2 | 15 56 25 ·923 | + 3 ·4740 | S. 19 22 33 ·88 | 10 ·295 |
| chi - - - | 3 | 16 6 13 ·691 | + 3 ·1381 | S. 3 17 26 ·12 | — 9 ·550 |
| i (*Antares*) | 1 | 16 19 54 ·797 | 3 ·6637 | S. 26 4 56 ·11 | 8 ·480 |
| is - - - - - | 3 | 16 21 54 ·324 | 0 ·7958 | N.61 51 58 ·90 | 8 ·324 |
| uli Australis - | 2 | 16 32 18 ·833 | + 6 ·2577 | S. 68 43 57 ·27 | 7 ·483 |
| Minoris - - - | 4 | 17 2 2 ·524 | — 6 ·5357* | N.82 16 57 ·32 | — 5 ·022 |
| lis - - - - | 3.4 | 17 7 34 ·885 | + 2 ·7320 | N.14 34 17 ·22 | 4 ·545 |
| s - - - - - | 6 | 17 21 8 ·427 | 106 ·5763 | S. 89 16 6 ·95 | 3 ·298 |
| nis - - - - | 2 | 17 26 56 ·122 | 1 ·3512 | N.52 25 6 ·16 | 2 ·882 |
| chi - - - - | 2 | 17 27 44 ·447 | + 2 ·7727 | N.12 40 39 ·92 | — 2 ·812 |
| nis - - - - | 2 | 17 53 0 ·565 | 1 ·3899 | N.51 30 34 ·11 | — 0 ·611 |
| rii - - - - | 3.4 | 18 4 29 ·690 | + 3 ·5861 | S. 21 5 36 ·54 | + 0 ·396 |
| Minoris - - | 3 | 18 22 19 ·965 | — 19 ·2619* | N.86 35 40 ·65 | 1 ·937 |
| - - (*Vega*) | 1 | 18 31 41 ·375 | + 2 ·0118 | N.38 38 32 ·57 | + 2 ·766 |
| - - - - - - | 3 | 18 44 21 ·483 | 2 ·2124 | N.33 11 10 ·94 | 3 ·859 |
| - - - - - | 3 | 18 58 17 ·208 | 2 ·7566 | N.13 38 15 ·44 | 5 ·048 |
| - - - - - | 3.4 | 19 17 40 ·880 | + 3 ·0086 | N. 2 48 36 ·97 | + 6 ·670 |

## MEAN PLACES OF 100 PRINCIPAL FIXED STARS, FOR JANUARY 1, 1845.

| Star's Name. | Mag. | Right Ascension. | Annual Var. | Declination. | Annu |
|---|---|---|---|---|---|
| | | h m s | s | ° ′ ″ | ″ |
| γ Aquilæ - - - - - - | 3 | 19 38 53 ·427 | + 2 ·8511 | N.10 14 23 ·11 | + 8 |
| α Aquilæ - (*Altair*) | 1.2 | 19 43 13 ·203 | 2 ·9254* | N. 8 27 45 ·59 | 8 |
| β Aquilæ - - - - - - | 3.4 | 19 47 41 ·922 | 2 ·9446 | N. 6 1 25 ·36 | 8 |
| $\alpha^2$ Capricorni - - - | 3 | 20 9 26 ·984 | 3 ·3316 | S. 13 1 14 ·93 | 10 |
| α Pavonis - - - - - - | 2 | 20 13 21 ·008 | + 4 ·8052 | S. 57 13 30 ·53 | +11 |
| λ Ursæ Minoris - - - | 5 | 20 17 23 ·143 | —51 ·8348 | N.88 50 42 ·26 | 11 |
| α Cygni - - - - - - - | 1 | 20 36 8 ·964 | + 2 ·0418 | N.44 43 44 ·81 | 12 |
| $61^1$ Cygni - - - - - - | 5.6 | 20 59 57 ·257 | 2 ·6908* | N.37 59 24 ·61 | 17 |
| ζ Cygni - - - - - - - | 3 | 21 6 20 ·525 | + 2 ·5486 | N.29 35 38 ·46 | +14 |
| α Cephei - - - - - - | 3 | 21 14 52 ·523 | 1 ·4163 | N.61 55 49 ·47 | 15 |
| β Aquarii - - - - - - | 3 | 21 23 23 ·712 | 3 ·1629 | S. 6 15 0 ·01 | 15 |
| β Cephei - - - - - - | 3 | 21 26 38 ·314 | 0 ·8063 | N.69 52 51 ·48 | 15 |
| ε Pegasi - - - - - - - | 2.3 | 21 36 34 ·402 | + 2 ·9441 | N. 9 10 1 ·09 | +16 |
| α Aquarii - - - - - - | 3 | 21 57 49 ·242 | 3 ·0832 | S. 1 4 13 ·99 | 17 |
| α Gruis - - - - - - - | 2 | 21 58 26 ·023 | 3 ·8138 | S.47 42 29 ·72 | 17 |
| ζ Pegasi - - - - - - - | 3 | 22 33 43 ·992 | 2 ·9836 | N.10 1 26 ·02 | 18 |
| α Pis.Aus.(*Fomalhaut*) | 1 | 22 49 4 ·221 | + 3 ·3097 | S.30 26 31 ·38 | +19 |
| α Pegasi (*Markab*) | 2 | 22 57 2 ·607 | 2 ·9776 | N.14 22 20 ·82 | 19 |
| ι Piscium - - - - - - | 4.5 | 23 31 58 ·679 | 3 ·0568 | N. 4 47 11 ·38 | 19 |
| γ Cephei - - - - - - | 3 | 23 33 2 ·177 | + 2 ·4035 | N.76 46 2 ·09 | +19 |

Those Annual Variations which include proper motion are distinguished an Asterisk.

## FORMULÆ OF REDUCTION,

ACCORDING TO PROFESSOR BESSEL.

1.—*Adopting the Notation and Coefficients employed by Mr. Baily, in his Introduction to the New Tables of the Astronomical Society of London.*

$$A = -18''\cdot6768 \cos \odot$$

$$B = -20''\cdot3600 \sin \odot$$

$$C = t - 0\cdot02495 \sin 2\odot - 0\cdot34362 \sin \Omega + 0\cdot00413 \sin 2\Omega - 0\cdot004 \sin 2 ☾$$

$$D = -0''\cdot54470 \cos 2\odot - 9''\cdot25000 \cos \Omega + 0''\cdot09030 \cos 2\Omega - 0''\cdot090 \cos 2 ☾$$

$$a = \cos \alpha \sec \delta$$

$$b = \sin \alpha \sec \delta$$

$$c = 46''\cdot0206 + 20''\cdot0426 \sin \alpha \tan \delta$$

$$d = \cos \alpha \tan \delta$$

$$a' = \tan \omega \cos \delta - \sin \alpha \sin \delta$$

$$b' = \cos \alpha \sin \delta$$

$$c' = 20''\cdot0426 \cos \alpha$$

$$d' = -\sin \alpha$$

$\Delta c =$ the annual proper motion in Right Ascension, *in arc.*

$\Delta c' =$ the annual proper motion in Declination.

Where $t$ denotes the time from the beginning of the year, expressed in fractional parts of a year, $\odot$ the Sun's and ☾ the Moon's true longitude, $\Omega$ the mean longitude of the Moon's node, and $\omega$ the obliquity of the Ecliptic, each for the time $t$: $\alpha$ the mean Right Ascension, *in arc*, and $\delta$ the mean Declination for the beginning of the year. Then, for the time represented by $t$,

Apparent R.A., *in arc*, $= \alpha + A a + B b + C c + D d + t \Delta c.$

Apparent Dec. - - - $= \delta + A a' + B b' + C c' + D d' + t \Delta c'.$

2.—*Using the same Notation and Coefficients, and assuming*

$$46''\cdot0206\, C = f \qquad B = h \cos H$$

$$20\cdot0426\, C = g \cos G \qquad A = h \sin H$$

$$D = g \sin G \qquad A \tan \omega = i$$

Apparent R.A., *in arc*, $= \alpha + f + t \Delta c$
$+ g \sin (G + \alpha) \tan \delta + h \sin (H + \alpha) \sec \delta$

Apparent Dec. - - - $= \delta + i \cos \delta + t \Delta c'$
$+ g \cos (G + \alpha) + h \cos (H + \alpha) \sin \delta$

CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

| Day of the Month. | At Greenwich Mean Midnight. | | | | | |
|---|---|---|---|---|---|---|
| | *f* | *g* | *G* | *h* | *H* | *i* |
| | ″ | ″ | ° ′ | ″ | ° ′ | ″ |
| Jan. 1 | +14·74 | + 7·94 | 36 3 | +20·30 | 349 24 | − 1·62 |
| 6 | 15·51 | 8·21 | 34 37 | 20·23 | 344 41 | 2·32 |
| 11 | 16·27 | 8·47 | 33 14 | 20·14 | 339 56 | 3·00 |
| 16 | 17·00 | 8·72 | 31 54 | 20·03 | 335 7 | 3·66 |
| 21 | +17·70 | + 8·96 | 30 38 | +19·91 | 330 16 | − 4·29 |
| 26 | 18·37 | 9·19 | 29 26 | 19·77 | 325 22 | 4·88 |
| 31 | 19·01 | 9·40 | 28 18 | 19·62 | 320 24 | 5·43 |
| Feb. 5 | 19·61 | 9·61 | 27 15 | 19·47 | 315 21 | 5·94 |
| 10 | +20·17 | + 9·80 | 26 18 | +19·32 | 310 14 | − 6·40 |
| 15 | 20·70 | 9·98 | 25 27 | 19·18 | 305 3 | 6·82 |
| 20 | 21·19 | 10·16 | 24 42 | 19·05 | 299 49 | 7·17 |
| 25 | 21·66 | 10·33 | 24 3 | 18·94 | 294 31 | 7·48 |
| Mar. 2 | +22·10 | +10·50 | 23 30 | +18·84 | 289 10 | − 7·72 |
| 7 | 22·52 | 10·66 | 23 3 | 18·76 | 283 47 | 7·91 |
| 12 | 22·93 | 10·82 | 22 43 | 18·71 | 278 23 | 8·03 |
| 17 | 23·33 | 10·99 | 22 28 | 18·68 | 272 58 | 8·10 |
| 22 | +23·72 | +11·17 | 22 18 | +18·68 | 267 34 | − 8·10 |
| 27 | 24·12 | 11·34 | 22 13 | 18·70 | 262 11 | 8·04 |
| April 1 | 24·52 | 11·53 | 22 11 | 18·75 | 256 50 | 7·93 |
| 6 | 24·94 | 11·73 | 22 13 | 18·83 | 251 32 | 7·75 |
| 11 | +25·38 | +11·94 | 22 18 | +18·92 | 246 17 | − 7·52 |
| 16 | 25·84 | 12·17 | 22 25 | 19·03 | 241 7 | 7·23 |
| 21 | 26·33 | 12·42 | 22 32 | 19·16 | 236 2 | 6·90 |
| 26 | 26·85 | 12·67 | 22 39 | 19·29 | 231 2 | 6·51 |
| May 1 | +27·40 | +12·94 | 22 45 | +19·43 | 226 7 | − 6·08 |
| 6 | 27·98 | 13·22 | 22 51 | 19·57 | 221 17 | 5·60 |
| 11 | 28·60 | 13·52 | 22 54 | 19·71 | 216 31 | 5·09 |
| 16 | 29·25 | 13·83 | 22 55 | 19·84 | 211 50 | 4·54 |
| 21 | +29·92 | +14·14 | 22 53 | +19·96 | 207 14 | − 3·97 |
| 26 | 30·62 | 14·47 | 22 49 | 20·08 | 202 41 | 3·36 |
| 31 | 31·35 | 14·80 | 22 42 | 20·18 | 198 11 | 2·73 |
| June 5 | 32·10 | 15·13 | 22 32 | 20·25 | 193 44 | 2·08 |
| 10 | +32·86 | +15·47 | 22 19 | +20·31 | 189 19 | − 1·43 |
| 15 | 33·63 | 15·80 | 22 3 | 20·35 | 184 55 | 0·76 |
| 20 | 34·40 | 16·13 | 21 45 | 20·36 | 180 32 | − 0·08 |
| 25 | 35·18 | 16·46 | 21 24 | 20·35 | 176 10 | + 0·59 |
| 30 | 35·96 | 16·78 | 21 2 | 20·32 | 171 47 | 1·26 |
| July 5 | +36·72 | +17·09 | 20 38 | +20·27 | 167 23 | + 1·92 |

## CONSTANTS FOR FACILITATING THE REDUCTION OF STARS.

| Day of the Month. | At Greenwich Mean Midnight. | | | | | |
|---|---|---|---|---|---|---|
| | *f* | *g* | *G* | *h* | *H* | *i* |
| | ″ | ″ | ° ′ | ″ | ° ′ | ″ |
| July 5 | +36·72 | +17·09 | 20 38 | +20·27 | 167 23 | + 1·92 |
| 10 | 37·47 | 17·39 | 20 13 | 20·20 | 162 57 | 2·57 |
| 15 | 38·20 | 17·68 | 19 47 | 20·11 | 158 29 | 3·20 |
| 20 | 38·90 | 17·95 | 19 20 | 20·00 | 153 59 | 3·81 |
| 25 | +39·58 | +18·22 | 18 54 | +19·88 | 149 25 | + 4·39 |
| 30 | 40·23 | 18·47 | 18 28 | 19·75 | 144 47 | 4·94 |
| Aug. 4 | 40·85 | 18·71 | 18 3 | 19·61 | 140 5 | 5·46 |
| 9 | 41·43 | 18·94 | 17 38 | 19·47 | 135 18 | 5·95 |
| 14 | +41·99 | +19·15 | 17 16 | +19·33 | 130 27 | + 6·39 |
| 19 | 42·51 | 19·35 | 16 55 | 19·20 | 125 31 | 6·78 |
| 24 | 43·00 | 19·54 | 16 36 | 19·07 | 120 31 | 7·13 |
| 29 | 43·47 | 19·73 | 16 19 | 18·96 | 115 26 | 7·43 |
| Sept. 3 | +43·91 | +19·90 | 16 5 | +18·86 | 110 16 | + 7·68 |
| 8 | 44·33 | 20·07 | 15 54 | 18·78 | 105 4 | 7·87 |
| 13 | 44·73 | 20·24 | 15 45 | 18·72 | 99 48 | 8·01 |
| 18 | 45·12 | 20·41 | 15 40 | 18·69 | 94 29 | 8·09 |
| 23 | +45·51 | +20·58 | 15 37 | +18·68 | 89 9 | + 8·11 |
| 28 | 45·89 | 20·75 | 15 36 | 18·70 | 83 48 | 8·07 |
| Oct. 3 | 46·29 | 20·93 | 15 38 | 18·74 | 78 27 | 7·97 |
| 8 | 46·69 | 21·12 | 15 42 | 18·80 | 73 7 | 7·81 |
| 13 | +47·11 | +21·32 | 15 47 | +18·89 | 67 49 | + 7·59 |
| 18 | 47·55 | 21·53 | 15 54 | 19·00 | 62 34 | 7·32 |
| 23 | 48·02 | 21·76 | 16 2 | 19·12 | 57 21 | 6·99 |
| 28 | 48·52 | 22·00 | 16 11 | 19·26 | 52 12 | 6·61 |
| Nov. 2 | +49·05 | +22·26 | 16 19 | +19·40 | 47 6 | + 6·17 |
| 7 | 49·62 | 22·53 | 16 27 | 19·55 | 42 4 | 5·68 |
| 12 | 50·22 | 22·82 | 16 34 | 19·70 | 37 6 | 5·15 |
| 17 | 50·85 | 23·12 | 16 40 | 19·84 | 32 11 | 4·58 |
| 22 | +51·52 | +23·43 | 16 45 | +19·97 | 27 20 | + 3·98 |
| 27 | 52·22 | 23·75 | 16 47 | 20·08 | 22 32 | 3·34 |
| Dec. 2 | 52·95 | 24·08 | 16 47 | 20·18 | 17 47 | 2·67 |
| 7 | 53·70 | 24·42 | 16 45 | 20·26 | 13 4 | 1·98 |
| 12 | +54·46 | +24·76 | 16 41 | +20·32 | 8 22 | + 1·28 |
| 17 | 55·24 | 25·10 | 16 35 | 20·35 | 3 41 | + 0·56 |
| 22 | 56·02 | 25·44 | 16 26 | 20·36 | 359 0 | − 0·16 |
| 27 | 56·80 | 25·77 | 16 16 | 20·34 | 354 20 | 0·88 |
| 32 | +57·57 | +26·09 | 16 4 | +20·30 | 349 38 | − 1·59 |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| JANUARY. | | | | | FEBRUARY. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ M | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | D |
| | h m 1 3 | ° ′ 88 29 | h m 18 21 | ° ′ 86 35 | | h m 1 3 | ° ′ 88 29 | h m 18 21 | 8 |
| | s | ″ | s | ″ | | s | ″ | s | |
| 1 | 56·82 | 23·6 | 51·59 | 43·9 | 1 | 32·61 | 23·1 | 54·51 | |
| 2 | 56·04 | 23·6 | 51·58 | 43·6 | 2 | 31·88 | 22·9 | 54·71 | |
| 3 | 55·26 | 23·7 | 51·57 | 43·2 | 3 | 31·15 | 22·8 | 54·92 | |
| 4 | 54·48 | 23·8 | 51·57 | 42·9 | 4 | 30·43 | 22·7 | 55·14 | |
| 5 | 53·70 | 23·9 | 51·58 | 42·6 | 5 | 29·72 | 22·6 | 55·36 | |
| 6 | 52·91 | 23·9 | 51·60 | 42·2 | 6 | 29·01 | 22·4 | 55·58 | |
| 7 | 52·12 | 24·0 | 51·63 | 41·9 | 7 | 28·31 | 22·3 | 55·81 | |
| 8 | 51·33 | 24·0 | 51·66 | 41·6 | 8 | 27·61 | 22·1 | 56·05 | |
| 9 | 50·54 | 24·1 | 51·70 | 41·2 | 9 | 26·92 | 22·0 | 56·29 | |
| 10 | 49·74 | 24·1 | 51·75 | 40·9 | 10 | 26·25 | 21·8 | 56·54 | |
| 11 | 48·94 | 24·1 | 51·80 | 40·6 | 11 | 25·59 | 21·7 | 56·79 | |
| 12 | 48·14 | 24·1 | 51·86 | 40·2 | 12 | 24·93 | 21·5 | 57·05 | |
| 13 | 47·33 | 24·1 | 51·92 | 39·9 | 13 | 24·28 | 21·3 | 57·31 | |
| 14 | 46·53 | 24·1 | 51·99 | 39·6 | 14 | 23·64 | 21·1 | 57·57 | |
| 15 | 45·74 | 24·1 | 52·07 | 39·3 | 15 | 23·00 | 20·9 | 57·84 | |
| 16 | 44·96 | 24·1 | 52·15 | 39·0 | 16 | 22·37 | 20·7 | 58·12 | |
| 17 | 44·17 | 24·0 | 52·24 | 38·7 | 17 | 21·76 | 20·5 | 58·40 | |
| 18 | 43·38 | 24·0 | 52·35 | 38·3 | 18 | 21·15 | 20·3 | 58·68 | |
| 19 | 42·59 | 24·0 | 52·46 | 38·0 | 19 | 20·56 | 20·1 | 58·97 | |
| 20 | 41·80 | 23·9 | 52·58 | 37·7 | 20 | 19·98 | 19·9 | 59·27 | |
| 21 | 41·02 | 23·9 | 52·71 | 37·4 | 21 | 19·42 | 19·6 | 59·57 | |
| 22 | 40·24 | 23·9 | 52·84 | 37·1 | 22 | 18·87 | 19·4 | 59·87 | |
| 23 | 39·46 | 23·8 | 52·98 | 36·8 | 23 | 18·32 | 19·1 | 60·17 | |
| 24 | 38·68 | 23·8 | 53·12 | 36·5 | 24 | 17·78 | 18·9 | 60·48 | |
| 25 | 37·91 | 23·7 | 53·27 | 36·2 | 25 | 17·26 | 18·7 | 60·79 | |
| 26 | 37·14 | 23·7 | 53·42 | 35·9 | 26 | 16·75 | 18·4 | 61·11 | |
| 27 | 36·37 | 23·6 | 53·58 | 35·6 | 27 | 16·24 | 18·2 | 61·43 | |
| | | | | | 28 | 15·76 | 18·0 | 61·75 | |
| 28 | 35·61 | 23·5 | 53·76 | 35·3 | | | | | |
| 29 | 34·85 | 23·4 | 53·94 | 35·0 | 29 | 15·29 | 17·7 | 62·08 | |
| 30 | 34·10 | 23·3 | 54·12 | 34·8 | | | | | |
| 31 | 33·35 | 23·2 | 54·31 | 34·5 | | | | | |
| 32 | 32·61 | 23·1 | 54·51 | 34·2 | | | | | |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| MARCH. | | | | | APRIL. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ay he ıth. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| | h m 1 3 | ° ′ 88 29 | h m 18 22 | ° ′ 86 35 | | h m 1 3 | ° ′ 88 28 | h m 18 22 | ° ′ 86 35 |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 15·29 | 17·7 | 2·08 | 28·3 | 1 | 7·60 | 68·5 | 13·04 | 27·0 |
| 2 | 14·84 | 17·4 | 2·41 | 28·2 | 2 | 7·60 | 68·2 | 13·40 | 27·1 |
| 3 | 14·40 | 17·2 | 2·74 | 28·0 | 3 | 7·62 | 67·9 | 13·75 | 27·1 |
| 4 | 13·96 | 16·9 | 3·08 | 27·9 | 4 | 7·65 | 67·6 | 14·10 | 27·2 |
| 5 | 13·53 | 16·6 | 3·42 | 27·8 | 5 | 7·69 | 67·3 | 14·45 | 27·3 |
| 6 | 13·12 | 16·3 | 3·76 | 27·7 | 6 | 7·73 | 66·9 | 14·80 | 27·4 |
| 7 | 12·72 | 16·0 | 4·11 | 27·6 | 7 | {7·79 / 7·86} | {66·6 / 66·3} | 15·15 | 27·5 |
| 8 | 12·33 | 15·8 | 4·46 | 27·5 | 8 | 7·96 | 66·0 | 15·49 | 27·6 |
| 9 | 11·97 | 15·5 | 4·81 | 27·4 | 9 | 8·09 | 65·7 | 15·83 | 27·7 |
| 10 | 11·62 | 15·3 | 5·16 | 27·3 | 10 | 8·23 | 65·4 | 16·17 | 27·8 |
| 11 | 11·29 | 15·0 | 5·51 | 27·2 | 11 | 8·38 | 65·1 | 16·51 | 27·9 |
| 12 | 10·97 | 14·7 | 5·86 | 27·1 | 12 | 8·54 | 64·8 | 16·85 | 28·0 |
| 13 | 10·66 | 14·4 | 6·21 | 27·0 | 13 | 8·71 | 64·5 | 17·18 | 28·1 |
| 14 | 10·36 | 14·1 | 6·57 | 27·0 | 14 | 8·90 | 64·2 | 17·51 | 28·2 |
| 15 | 10·08 | 13·8 | 6·92 | 27·0 | 15 | 9·11 | 63·9 | 17·84 | 28·3 |
| 16 | 9·81 | 13·5 | 7·28 | 26·9 | 16 | 9·35 | 63·6 | 18·17 | 28·5 |
| 17 | 9·55 | 13·2 | 7·64 | 26·9 | 17 | 9·59 | 63·3 | 18·49 | 28·6 |
| 18 | 9·32 | 12·9 | 8·00 | 26·9 | 18 | 9·84 | 63·0 | 18·80 | 28·8 |
| 19 | 9·10 | 12·6 | 8·36 | 26·8 | 19 | 10·10 | 62·7 | 19·11 | 29·0 |
| 20 | 8·89 | 12·3 | 8·72 | 26·8 | 20 | 10·37 | 62·4 | 19·42 | 29·1 |
| 21 | 8·70 | 12·0 | 9·08 | 26·8 | 21 | 10·65 | 62·1 | 19·72 | 29·3 |
| 22 | 8·53 | 11·7 | 9·44 | 26·8 | 22 | 10·95 | 61·8 | 20·02 | 29·5 |
| 23 | 8·38 | 11·3 | 9·80 | 26·8 | 23 | 11·27 | 61·5 | 20·32 | 29·6 |
| 24 | 8·23 | 11·0 | 10·16 | 26·8 | 24 | 11·61 | 61·2 | 20·62 | 29·8 |
| 25 | 8·10 | 10·7 | 10·53 | 26·8 | 25 | 11·96 | 60·9 | 20·92 | 30·0 |
| 26 | 7·97 | 10·4 | 10·90 | 26·8 | 26 | 12·33 | 60·6 | 21·21 | 30·2 |
| 27 | 7·86 | 10·1 | 11·26 | 26·9 | 27 | 12·71 | 60·3 | 21·50 | 30·4 |
| 28 | 7·78 | 9·7 | 11·62 | 26·9 | 28 | 13·11 | 60·1 | 21·78 | 30·6 |
| 29 | 7·72 | 9·4 | 11·98 | 26·9 | 29 | 13·52 | 59·8 | 22·06 | 30·8 |
| 30 | 7·67 | 9·1 | 12·34 | 26·9 | 30 | 13·93 | 59·6 | 22·34 | 31·1 |
| 31 | 7·62 | 8·8 | 12·69 | 27·0 | 31 | 14·36 | 59·3 | 22·61 | 31·3 |
| 2 | 7·60 | 8·5 | 13·04 | 27·0 | | | | | |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| MAY. | | | | | JUNE. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| | h m 1 3 | ° ′ 88 28 | h m 18 22 | ° ′ 86 35 | | h m 1 3 | ° ′ 88 28 | h m 18 22 | ° ′ 86 35 |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 14·36 | 59·3 | 22·61 | 31·3 | 1 | 33·07 | 53·3 | 28·30 | 39·7 |
| 2 | 14·81 | 59·0 | 22·87 | 31·5 | 2 | 33·81 | 53·2 | 28·39 | 40·0 |
| 3 | 15·26 | 58·8 | 23·13 | 31·7 | 3 | 34·55 | 53·0 | 28·48 | 40·4 |
| 4 | 15·72 | 58·6 | 23·38 | 31·9 | 4 | 35·31 | 52·9 | 28·56 | 40·7 |
| 5 | 16·20 | 58·3 | 23·62 | 32·1 | 5 | 36·07 | 52·8 | 28·63 | 41·0 |
| 6 | 16·69 | 58·0 | 23·86 | 32·4 | 6 | 36·84 | 52·7 | 28·69 | 41·3 |
| 7 | 17·19 | 57·8 | 24·10 | 32·6 | 7 | 37·61 | 52·6 | 28·74 | 41·6 |
| 8 | 17·71 | 57·5 | 24·34 | 32·9 | 8 | 38·39 | 52·5 | 28·79 | 42·0 |
| 9 | 18·24 | 57·3 | 24·57 | 33·1 | 9 | 39·18 | 52·4 | 28·84 | 42·3 |
| 10 | 18·78 | 57·1 | 24·80 | 33·4 | 10 | 39·97 | 52·3 | 28·88 | 42·6 |
| 11 | 19·32 | 56·9 | 25·02 | 33·6 | 11 | 40·77 | 52·2 | 28·91 | 43·0 |
| 12 | 19·87 | 56·7 | 25·23 | 33·9 | 12 | 41·57 | 52·2 | 28·94 | 43·3 |
| 13 | 20·43 | 56·5 | 25·43 | 34·2 | 13 | 42·37 | 52·1 | 28·96 | 43·6 |
| 14 | 21·01 | 56·2 | 25·63 | 34·4 | 14 | 43·17 | 52·1 | 28·98 | 44·0 |
| 15 | 21·60 | 56·0 | 25·83 | 34·7 | 15 | 43·98 | 52·0 | 28·99 | 44·3 |
| 16 | 22·21 | 55·8 | 26·03 | 35·0 | 16 | 44·80 | 52·0 | 28·99 | 44·6 |
| 17 | 22·83 | 55·6 | 26·22 | 35·2 | 17 | 45·61 | 51·9 | 28·98 | 44·9 |
| 18 | 23·45 | 55·4 | 26·39 | 35·5 | 18 | 46·43 | 51·9 | 28·97 | 45·2 |
| 19 | 24·08 | 55·2 | 26·56 | 35·8 | 19 | 47·25 | 51·9 | 28·95 | 45·6 |
| 20 | 24·72 | 55·0 | 26·73 | 36·1 | 20 | 48·07 | 51·9 | 28·93 | 45·9 |
| 21 | 25·37 | 54·9 | 26·89 | 36·4 | 21 | 48·90 | 51·8 | 28·90 | 46·2 |
| 22 | 26·02 | 54·7 | 27·05 | 36·7 | 22 | 49·73 | 51·8 | 28·86 | 46·6 |
| 23 | 26·69 | 54·6 | 27·20 | 37·0 | 23 | 50·56 | 51·8 | 28·81 | 46·9 |
| 24 | 27·37 | 54·4 | 27·35 | 37·3 | 24 | 51·39 | 51·8 | 28·76 | 47·2 |
| 25 | 28·05 | 54·2 | 27·50 | 37·6 | 25 | 52·22 | 51·8 | 28·70 | 47·5 |
| 26 | 28·75 | 54·1 | 27·63 | 37·9 | 26 | 53·05 | 51·8 | 28·64 | 47·9 |
| 27 | 29·46 | 53·9 | 27·75 | 38·2 | 27 | 53·88 | 51·8 | 28·57 | 48·2 |
| 28 | 30·17 | 53·8 | 27·86 | 38·5 | 28 | 54·72 | 51·8 | 28·50 | 48·5 |
| 29 | 30·89 | 53·7 | 27·98 | 38·8 | 29 | 55·57 | 51·9 | 28·42 | 48·9 |
| 30 | 31·61 | 53·5 | 28·09 | 39·1 | 30 | 56·42 | 51·9 | 28·34 | 49·2 |
| 31 | 32·34 | 53·4 | 28·20 | 39·4 | 31 | 57·27 | 51·9 | 28·25 | 49·5 |
| 32 | 33·07 | 53·3 | 28·30 | 39·7 | | | | | |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| JULY. | | | | | AUGUST. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| | h m 1 3 | ° ′ 88 28 | h m 18 22 | ° ′ 86 35 | | h m 1 4 | ° ′ 88 28 | h m 18 22 | ° ′ 86 35 |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 57·27 | 51·9 | 28·25 | 49·5 | 1 | 22·37 | 55·8 | 22·51 | 58·8 |
| 2 | 58·12 | 52·0 | 28·15 | 49·9 | 2 | 23·12 | 56·0 | 22·25 | 59·0 |
| 3 | 58·96 | 52·1 | 28·04 | 50·2 | 3 | 23·86 | 56·2 | 21·97 | 59·3 |
| 4 | 59·80 | 52·1 | 27·93 | 50·5 | 4 | 24·60 | 56·4 | 21·69 | 59·5 |
| 5 | 60·63 | 52·2 | 27·82 | 50·8 | 5 | 25·33 | 56·6 | 21·40 | 59·7 |
| 6 | 61·46 | 52·2 | 27·71 | 51·1 | 6 | 26·05 | 56·8 | 21·11 | 60·0 |
| 7 | 62·30 | 52·3 | 27·59 | 51·4 | 7 | 26·76 | 57·0 | 20·82 | 60·2 |
| 8 | 63·13 | 52·4 | 27·45 | 51·7 | 8 | 27·47 | 57·3 | 20·53 | 60·5 |
| 9 | 63·96 | 52·4 | 27·30 | 52·0 | 9 | 28·18 | 57·5 | 20·22 | 60·7 |
| 10 | 64·80 | 52·5 | 27·15 | 52·3 | 10 | 28·89 | 57·7 | 19·91 | 61·0 |
| 11 | 65·64 | 52·6 | 26·99 | 52·7 | 11 | 29·59 | 58·0 | 19·59 | 61·2 |
| 12 | 66·47 | 52·7 | 26·83 | 53·0 | 12 | 30·27 | 58·2 | 19·28 | 61·4 |
| 13 | 67·30 | 52·8 | 26·66 | 53·3 | 13 | 30·94 | 58·4 | 18·97 | 61·6 |
| 14 | 68·13 | 52·9 | 26·48 | 53·6 | 14 | 31·61 | 58·7 | 18·65 | 61·8 |
| 15 | 68·95 | 53·1 | 26·30 | 53·9 | 15 | 32·28 | 58·9 | 18·32 | 62·0 |
| 16 | 69·76 | 53·2 | 26·12 | 54·2 | 16 | 32·94 | 59·2 | 17·99 | 62·2 |
| 17 | 70·57 | 53·3 | 25·94 | 54·5 | 17 | 33·59 | 59·5 | 17·65 | 62·5 |
| 18 | 71·38 | 53·4 | 25·75 | 54·8 | 18 | 34·22 | 59·8 | 17·31 | 62·7 |
| 19 | 72·20 | 53·5 | 25·56 | 55·1 | 19 | 34·84 | 60·0 | 16·97 | 62·9 |
| 20 | 73·01 | 53·6 | 25·36 | 55·4 | 20 | 35·46 | 60·3 | 16·62 | 63·1 |
| 21 | 73·82 | 53·8 | 25·15 | 55·7 | 21 | 36·07 | 60·6 | 16·27 | 63·3 |
| 22 | 74·62 | 53·9 | 24·93 | 56·0 | 22 | 36·68 | 60·9 | 15·92 | 63·5 |
| 23 | 75·41 | 54·1 | 24·71 | 56·3 | 23 | 37·28 | 61·2 | 15·56 | 63·6 |
| 24 | 76·19 | 54·3 | 24·49 | 56·5 | 24 | 37·87 | 61·5 | 15·20 | 63·8 |
| 25 | 76·98 | 54·4 | 24·26 | 56·8 | 25 | 38·45 | 61·8 | 14·84 | 64·0 |
| 26 | 77·77 | 54·6 | 24·02 | 57·1 | 26 | 39·03 | 62·1 | 14·48 | 64·1 |
| 27 | 78·55 | 54·8 | 23·78 | 57·4 | 27 | 39·60 | 62·4 | 14·11 | 64·3 |
| 28 | 79·32 | 55·0 | 23·53 | 57·7 | 28 | 40·16 | 62·7 | 13·74 | 64·5 |
| 29 | 80·09 | 55·2 | 23·28 | 58·0 | 29 | 40·71 | 63·0 | 13·36 | 64·6 |
| 30 | 80·86 | 55·4 | 23·03 | 58·2 | 30 | 41·24 | 63·3 | 12·99 | 64·8 |
| 31 | 81·62 | 55·6 | 22·77 | 58·5 | 31 | 41·76 | 63·6 | 12·61 | 65·0 |
| 32 | 82·37 | 55·8 | 22·51 | 58·8 | 32 | 42·27 | 63·9 | 12·23 | 65·1 |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| SEPTEMBER. | | | | | OCTOBER. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINO | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. |
| | h m<br>1 4 | ° ′<br>88 29 | h m<br>18 21 | ° ′<br>86 36 | | h m<br>1 4 | ° ′<br>88 29 | h m<br>18 21 | ° |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 42·27 | 3·9 | 72·23 | 5·1 | 1 | 52·84 | 14·5 | 59·94 | 7 |
| 2 | 42·77 | 4·2 | 71·84 | 5·3 | 2 | 53·01 | 14·8 | 59·52 | 7 |
| 3 | 43·27 | 4·6 | 71·46 | 5·4 | 3 | 53·18 | 15·2 | 59·09 | 7 |
| 4 | 43·77 | 4·9 | 71·07 | 5·5 | 4 | 53·34 | 15·6 | 58·67 | 7 |
| 5 | 44·25 | 5·3 | 70·68 | 5·6 | 5 | 53·48 | 16·0 | 58·25 | 7 |
| 6 | 44·72 | 5·6 | 70·29 | 5·8 | 6 | 53·60 | 16·3 | 57·83 | 7 |
| 7 | 45·16 | 5·9 | 69·89 | 5·9 | 7 | 53·71 | 16·7 | 57·41 | 7 |
| 8 | 45·60 | 6·3 | 69·49 | 6·0 | 8 | 53·81 | 17·1 | 56·99 | 7 |
| 9 | 46·04 | 6·6 | 69·09 | 6·1 | 9 | 53·90 | 17·5 | 56·57 | 7 |
| 10 | 46·47 | 6·9 | 68·68 | 6·2 | 10 | 53·98 | 17·9 | 56·15 | 7 |
| 11 | 46·88 | 7·2 | 68·28 | 6·3 | 11 | 54·04 | 18·2 | 55·73 | 7 |
| 12 | 47·28 | 7·6 | 67·87 | 6·4 | 12 | 54·10 | 18·6 | 55·32 | 7 |
| 13 | 47·67 | 7·9 | 67·46 | 6·5 | 13 | 54·14 | 19·0 | 54·91 | 7 |
| 14 | 48·05 | 8·2 | 67·05 | 6·6 | 14 | 54·16 | 19·3 | 54·49 | 6 |
| 15 | 48·43 | 8·6 | 66·64 | 6·7 | 15 | 54·18 | 19·7 | 54·08 | 6 |
| 16 | 48·80 | 9·0 | 66·23 | 6·7 | 16 | 54·19 | 20·1 | 53·67 | 6 |
| 17 | 49·15 | 9·3 | 65·82 | 6·8 | 17 | 54·18 | 20·4 | 53·26 | 6 |
| 18 | 49·49 | 9·7 | 65·40 | 6·9 | 18 | 54·16 | 20·8 | 52·85 | 6 |
| 19 | 49·83 | 10·1 | 64·98 | 6·9 | 19 | 54·12 | 21·2 | 52·44 | 6 |
| 20 | 50·14 | 10·5 | 64·57 | 7·0 | 20 | 54·06 | 21·6 | 52·04 | 6 |
| 21 | 50·44 | 10·8 | 64·15 | 7·0 | 21 | 53·99 | 22·0 | 51·64 | 6 |
| 22 | 50·74 | 11·1 | 63·73 | 7·1 | 22 | 53·91 | 22·4 | 51·24 | 6 |
| 23 | 51·02 | 11·5 | 63·31 | 7·1 | 23 | 53·82 | 22·8 | 50·84 | 6 |
| 24 | 51·30 | 11·8 | 62·89 | 7·2 | 24 | 53·72 | 23·1 | 50·44 | 6 |
| 25 | 51·57 | 12·2 | 62·47 | 7·2 | 25 | 53·62 | 23·5 | 50·04 | 5 |
| 26 | 51·81 | 12·6 | 62·05 | 7·2 | 26 | 53·50 | 23·8 | 49·65 | 5 |
| 27 | 52·03 | 13·0 | 61·63 | 7·3 | 27 | 53·37 | 24·2 | 49·27 | 5 |
| 28 | 52·24 | 13·4 | 61·21 | 7·3 | 28 | 53·23 | 24·6 | 48·89 | 5 |
| 29 | 52·45 | 13·8 | 60·79 | 7·3 | 29 | 53·07 | 24·9 | 48·51 | 5 |
| 30 | 52·65 | 14·1 | 60·37 | 7·3 | 30 | 52·89 | 25·3 | 48·13 | 5 |
| | | | | | 31 | 52·68 | 25·7 | 47·75 | 5 |
| 31 | 52·84 | 14·5 | 59·91 | 7·3 | | | | | |
| | | | | | 32 | 52·46 | 26·0 | 47·37 | 5 |

## APPARENT PLACES OF α AND δ URSÆ MINORIS, FOR THE UPPER TRANSIT AT GREENWICH.

| NOVEMBER. | | | | | DECEMBER. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| y the ith. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | | Day of the Month. | α URSÆ MINOR. (*Polaris*) | | δ URSÆ MINOR. | |
| | R. A. | Dec. N. | R. A. | Dec. N. | | R. A. | Dec. N. | R. A. | Dec. N. |
| | h m 1 4 | ° ′ 88 29 | h m 18 21 | ° ′ 86 35 | | h m 1 4 | ° ′ 88 29 | h m 18 21 | ° ′ 86 35 |
| | s | ″ | s | ″ | | s | ″ | s | ″ |
| 1 | 52·46 | 26·0 | 47·37 | 65·0 | 1 | 40·70 | 35·5 | 38·07 | 58·3 |
| 2 | 52·24 | 26·3 | 47·00 | 64·8 | 2 | 40·13 | 35·7 | 37·84 | 58·0 |
| 3 | 52·02 | 26·7 | 46·63 | 64·6 | 3 | 39·55 | 35·9 | 37·61 | 57·8 |
| 4 | 51·78 | 27·0 | 46·27 | 64·5 | 4 | 38·96 | 36·2 | 37·38 | 57·5 |
| 5 | 51·53 | 27·3 | 45·91 | 64·3 | 5 | 38·37 | 36·5 | 37·16 | 57·2 |
| 6 | 51·28 | 27·7 | 45·56 | 64·1 | 6 | 37·77 | 36·7 | 36·94 | 56·9 |
| 7 | 51·01 | 28·1 | 45·21 | 63·9 | 7 | 37·15 | 36·9 | 36·74 | 56·6 |
| 8 | 50·71 | 28·4 | 44·86 | 63·7 | 8 | 36·52 | 37·1 | 36·56 | 56·3 |
| 9 | 50·40 | 28·7 | 44·51 | 63·5 | 9 | 35·88 | 37·3 | 36·39 | 56·0 |
| 10 | 50·07 | 29·0 | 44·17 | 63·3 | 10 | 35·23 | 37·6 | 36·21 | 55·7 |
| 11 | 49·74 | 29·4 | 43·83 | 63·1 | 11 | 34·57 | 37·8 | 36·03 | 55·4 |
| 12 | 49·40 | 29·8 | 43·49 | 62·9 | 12 | 33·91 | 38·0 | 35·86 | 55·1 |
| 13 | 49·04 | 30·1 | 43·16 | 62·7 | 13 | 33·24 | 38·2 | 35·71 | 54·8 |
| 14 | 48·67 | 30·5 | 42·84 | 62·5 | 14 | 32·57 | 38·3 | 35·56 | 54·5 |
| 15 | 48·30 | 30·8 | 42·52 | 62·3 | 15 | 31·90 | 38·5 | 35·41 | 54·2 |
| 16 | 47·91 | 31·1 | 42·20 | 62·1 | 16 | 31·21 | 38·7 | 35·27 | 53·9 |
| 17 | 47·51 | 31·4 | 41·88 | 61·8 | 17 | 30·51 | 38·9 | 35·13 | 53·6 |
| 18 | 47·10 | 31·7 | 41·57 | 61·6 | 18 | 29·80 | 39·1 | 34·99 | 53·2 |
| 19 | 46·68 | 32·0 | 41·27 | 61·3 | 19 | 29·08 | 39·3 | 34·86 | 52·9 |
| 20 | 46·24 | 32·3 | 40·98 | 61·1 | 20 | 28·36 | 39·5 | 34·75 | 52·6 |
| 21 | 45·79 | 32·6 | 40·69 | 60·9 | 21 | 27·64 | 39·6 | 34·65 | 52·2 |
| 22 | 45·33 | 32·9 | 40·40 | 60·7 | 22 | 26·90 | 39·8 | 34·56 | 51·9 |
| 23 | 44·87 | 33·2 | 40·12 | 60·4 | 23 | 26·16 | 39·9 | 34·48 | 51·5 |
| 24 | 44·40 | 33·5 | 39·84 | 60·2 | 24 | 25·41 | 40·0 | 34·40 | 51·2 |
| 25 | 43·91 | 33·8 | 39·57 | 60·0 | 25 | 24·66 | 40·1 | 34·32 | 50·9 |
| 26 | 43·40 | 34·1 | 39·30 | 59·7 | 26 | 23·91 | 40·3 | {34·24 / 34·16} | {50·5 / 50·2} |
| 27 | 42·87 | 34·4 | 39·04 | 59·4 | 27 | 23·14 | 40·4 | 34·09 | 49·9 |
| 28 | 42·34 | 34·7 | 38·79 | 59·1 | 28 | 22·37 | 40·5 | 34·03 | 49·5 |
| 29 | 41·80 | 35·0 | 38·55 | 58·8 | 29 | 21·60 | 40·6 | 33·98 | 49·2 |
| 30 | 41·26 | 35·2 | 38·31 | 58·6 | 30 | 20·82 | 40·7 | 33·94 | 48·9 |
| | | | | | 31 | 20·05 | 40·8 | 33·91 | 48·6 |
| 1 | 40·70 | 35·5 | 38·07 | 58·3 | | | | | |
| | | | | | 32 | 19·28 | 40·9 | 33·89 | 48·3 |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Andromedæ. | | | | γ Pegasi. (*Algenib*) | | | | β Hydri. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | |
| | h m 0 0 | | ° ′ 28 14 | | h m 0 5 | | ° ′ 14 19 | | h m 0 17 | | ° ′ 78 7 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 24·06 | 0·14 | 19·8 | 1·0 | 16·45 | 0·11 | 27·5 | 0·9 | 29·51 | 0·94 | 58·4 | 1·7 |
| 11 | 23·92 | 0·13 | 18·8 | 1·3 | 16·34 | 0·12 | 26·6 | 1·0 | 28·57 | 0·87 | 57·3 | 1·7 |
| 21 | 23·79 | 0·12 | 17·5 | 1·4 | 16·22 | 0·10 | 25·6 | 1·1 | 27·70 | 0·78 | 55·6 | 2·2 |
| 31 | 23·67 | | 16·1 | | 16·12 | | 24·5 | | 26·92 | | 53·3 | |
| | | 0·10 | | 1·6 | | 0·08 | | 1·0 | | 0·67 | | 2·7 |
| Feb. 10 | 23·57 | 0·07 | 14·5 | 1·7 | 16·04 | 0·06 | 23·5 | 1·1 | 26·25 | 0·55 | 50·6 | 3·9 |
| 20 | 23·50 | 0·03 | 12·8 | 1·6 | 15·98 | 0·03 | 22·4 | 0·9 | 25·70 | 0·40 | 47·6 | 3·4 |
| Mar. 2 | 23·47 | 0·01 | 11·2 | 1·6 | 15·95 | 0·00 | 21·5 | 0·8 | 25·30 | 0·26 | 44·2 | 3·6 |
| 12 | 23·46 | | 9·6 | | 15·95 | | 20·7 | | 25·04 | | 40·6 | |
| | | 0·05 | | 1·4 | | 0·04 | | 0·6 | | 0·09 | | 3·2 |
| 22 | 23·51 | 0·09 | 8·2 | 1·2 | 15·99 | 0·08 | 20·1 | 0·4 | 24·95 | 0·08 | 36·8 | 4·1 |
| Apr. 1 | *23·60 | 0·14 | 7·0 | 0·9 | *16·07 | 0·12 | 19·7 | 0·1 | *25·03 | 0·24 | 32·7 | 3·8 |
| 11 | 23·74 | 0·18 | 6·1 | 0·4 | 16·19 | 0·16 | 19·6 | 0·3 | 25·27 | 0·40 | 28·9 | 3·5 |
| 21 | 23·92 | | 5·7 | | 16·35 | | 19·9 | | 25·67 | | 25·3 | |
| | | 0·22 | | 0·1 | | 0·20 | | 0·6 | | 0·54 | | 3·4 |
| May 1 | 24·14 | 0·26 | 5·6 | 0·3 | 16·55 | 0·24 | 20·5 | 0·9 | 26·21 | 0·69 | 21·9 | 3·2 |
| 11 | 24·40 | 0·29 | 5·9 | 0·6 | 16·79 | 0·27 | 21·4 | 1·1 | 26·90 | 0·82 | 18·7 | 2·4 |
| 21 | 24·69 | 0·32 | 6·5 | 1·1 | 17·06 | 0·29 | 22·5 | 1·5 | 27·72 | 0·92 | 15·9 | [illegible] |
| 31 | 25·01 | | 7·6 | | 17·35 | | 24·0 | | 28·64 | | 13·5 | |
| | | 0·34 | | 1·4 | | 0·31 | | 1·7 | | 1·00 | | 2·0 |
| June 10 | 25·35 | 0·34 | 9·0 | 1·7 | 17·66 | 0·32 | 25·7 | 1·9 | 29·64 | 1·07 | 11·5 | 1·5 |
| 20 | 25·69 | 0·33 | 10·7 | 1·9 | 17·98 | 0·32 | 27·6 | 2·0 | 30·71 | 1·10 | 10·0 | 0·7 |
| 30 | 26·02 | 0·33 | 12·6 | 2·2 | 18·30 | 0·30 | 29·6 | 2·1 | 31·81 | 1·10 | 9·1 | 0·7 |
| July 10 | 26·35 | | 14·8 | | 18·60 | | 31·7 | | 32·91 | | 8·8 | |
| | | 0·31 | | 2·4 | | 0·29 | | 2·2 | | 1·07 | | 0·7 |
| 20 | 26·66 | 0·28 | 17·2 | 2·4 | 18·89 | 0·27 | 33·9 | 2·0 | 33·98 | 1·01 | 9·0 | 0·7 |
| 30 | 26·94 | 0·25 | 19·6 | 2·5 | 19·16 | 0·24 | 35·9 | 2·1 | 34·99 | 0·93 | 9·8 | 1·1 |
| Aug. 9 | 27·19 | 0·21 | 22·1 | 2·5 | 19·40 | 0·21 | 38·0 | 1·9 | 35·92 | 0·80 | 11·1 | 1·7 |
| 19 | 27·40 | | 24·6 | | 19·61 | | 39·9 | | 36·72 | | 12·9 | |
| | | 0·18 | | 2·4 | | 0·17 | | 1·8 | | 0·65 | | 2·3 |
| 29 | 27·58 | 0·13 | 27·0 | 2·3 | 19·78 | 0·13 | 41·7 | 1·6 | 37·37 | 0·49 | 15·2 | 2·7 |
| Sept. 8 | 27·71 | 0·09 | 29·3 | 2·1 | 19·91 | 0·09 | 43·3 | 1·4 | 37·86 | 0·30 | 17·9 | 2·9 |
| 18 | 27·80 | 0·05 | 31·4 | 2·0 | 20·00 | 0·06 | 44·7 | 1·1 | 38·16 | 0·11 | 20·8 | 3·0 |
| 28 | 27·85 | | 33·4 | | 20·06 | | 45·8 | | 38·27 | | 23·8 | |
| | | 0·02 | | 1·7 | | 0·02 | | 1·0 | | 0·08 | | 3·1 |
| Oct. 8 | 27·87 | 0·02 | 35·1 | 1·5 | 20·08 | 0·01 | 46·8 | 0·7 | 38·19 | 0·28 | 26·9 | 3·1 |
| 18 | 27·85 | 0·06 | 36·6 | 1·3 | 20·07 | 0·04 | 47·5 | 0·5 | 37·91 | 0·45 | 30·0 | 2·8 |
| 28 | 27·79 | 0·07 | 37·9 | 0·9 | 20·03 | 0·07 | 48·0 | 0·2 | 37·46 | 0·62 | 32·8 | 2·5 |
| Nov. 7 | 27·72 | | 38·8 | | 19·96 | | 48·2 | | 36·84 | | 35·3 | |
| | | 0·10 | | 0·7 | | 0·08 | | 0·1 | | 0·75 | | 2·1 |
| 17 | 27·62 | 0·12 | 39·5 | 0·3 | 19·88 | 0·10 | 48·3 | 0·2 | 36·09 | 0·85 | 37·4 | 1·7 |
| 27 | 27·50 | 0·13 | 39·8 | 0·0 | 19·78 | 0·11 | 48·1 | 0·3 | 35·24 | 0·94 | 39·1 | 1·0 |
| Dec. 7 | 27·37 | 0·14 | 39·8 | 0·3 | 19·67 | 0·12 | 47·8 | 0·6 | 34·30 | 0·97 | 40·1 | 0·5 |
| 17 | 27·23 | | 39·5 | | 19·55 | | 47·2 | | 33·33 | | 40·6 | |
| | | 0·14 | | 0·6 | | 0·12 | | 0·7 | | 0·98 | | 0·2 |
| 27 | 27·09 | 0·15 | 38·9 | 0·9 | 19·43 | 0·13 | 46·5 | 0·9 | 32·35 | 0·96 | 40·4 | 0·3 |
| 37 | 26·94 | | 38·0 | | 19·30 | | 45·6 | | 31·39 | | 39·5 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Cassiopeæ. | | | | β Ceti. | | | | θ¹ Ceti. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m<br>0 31 | | ° ′<br>55 41 | | h m<br>0 35 | | ° ′<br>18 49 | | h m<br>1 16 | | ° ′<br>8 58 | |
| Jan. 1 | s<br>46·37 | s<br>0·28 | ″<br>32·8 | ″<br>0·6 | s<br>49·15 | s<br>0·13 | ″<br>81·3 | ″<br>0·4 | s<br>17·81 | s<br>0·13 | ″<br>65·1 | ″<br>0·7 |
| 11 | 46·09 | 0·28 | 32·2 | 1·1 | 49·02 | 0·13 | 81·7 | 0·3 | 17·68 | 0·13 | 65·8 | 0·6 |
| 21 | 45·81 | 0·26 | 31·1 | 1·5 | 48·89 | 0·12 | 82·0 | 0·1 | 17·55 | 0·13 | 66·4 | 0·3 |
| 31 | 45·55 | | 29·6 | | 48·77 | | 81·9 | | 17·42 | | 66·7 | |
| | | 0·23 | | 1·9 | | 0·10 | | 0·3 | | 0·12 | | 0·2 |
| Feb. 10 | 45·32 | 0·19 | 27·7 | 2·3 | 48·67 | 0·09 | 81·6 | 0·6 | 17·30 | 0·11 | 66·9 | 0·0 |
| 20 | 45·13 | 0·14 | 25·4 | 2·4 | 48·58 | 0·06 | 81·0 | 0·8 | 17·19 | 0·10 | 66·9 | 0·3 |
| Mar. 2 | 44·99 | 0·09 | 23·0 | 2·6 | 48·52 | 0·04 | 80·2 | 1·1 | 17·09 | 0·07 | 66·6 | 0·5 |
| 12 | 44·90 | | 20·4 | | 48·48 | | 79·1 | | 17·02 | | 66·1 | |
| | | 0·02 | | 2·5 | | 0·00 | | 1·4 | | 0·03 | | 0·7 |
| 22 | 44·88 | 0·07 | 17·9 | 2·7 | 48·48 | 0·04 | 77·7 | 1·8 | 16·99 | 0·00 | 65·4 | 1·0 |
| Apr. 1 | *44·95 | 0·14 | 15·2 | 2·3 | *48·52 | 0·09 | 75·9 | 1·8 | 16·99 | 0·04 | 64·4 | 1·4 |
| 11 | 45·09 | 0·21 | 12·9 | 1·9 | 48·61 | 0·12 | 74·1 | 2·1 | *17·03 | 0·08 | 63·0 | 1·5 |
| 21 | 45·30 | | 11·0 | | 48·73 | | 72·0 | | 17·11 | | 61·5 | |
| | | 0·28 | | 1·6 | | 0·17 | | 2·1 | | 0·13 | | 1·6 |
| May 1 | 45·58 | 0·34 | 9·4 | 1·1 | 48·90 | 0·21 | 69·9 | 2·3 | 17·24 | 0·17 | 59·9 | 1·9 |
| 11 | 45·92 | 0·39 | 8·3 | 0·7 | 49·11 | 0·24 | 67·6 | 2·3 | 17·41 | 0·21 | 58·0 | 2·0 |
| 21 | 46·31 | 0·43 | 7·6 | 0·2 | 49·35 | 0·27 | 65·3 | 2·4 | 17·62 | 0·24 | 56·0 | 2·1 |
| 31 | 46·74 | | 7·4 | | 49·62 | | 62·9 | | 17·86 | | 53·9 | |
| | | 0·47 | | 0·4 | | 0·29 | | 2·3 | | 0·27 | | 2·1 |
| June 10 | 47·21 | 0·48 | 7·8 | 0·8 | 49·91 | 0·31 | 60·6 | 2·1 | 18·13 | 0·29 | 51·8 | 2·1 |
| 20 | 47·69 | 0·48 | 8·6 | 1·3 | 50·22 | 0·32 | 58·5 | 2·0 | 18·42 | 0·30 | 49·7 | 2·1 |
| 30 | 48·17 | 0·47 | 9·9 | 1·7 | 50·54 | 0·32 | 56·5 | 1·8 | 18·72 | 0·31 | 47·6 | 1·9 |
| July 10 | 48·64 | | 11·6 | | 50·86 | | 54·7 | | 19·03 | | 45·7 | |
| | | 0·45 | | 2·1 | | 0·30 | | 1·5 | | 0·31 | | 1·8 |
| 20 | 49·09 | 0·42 | 13·7 | 2·4 | 51·16 | 0·29 | 53·2 | 1·2 | 19·34 | 0·29 | 43·9 | 1·6 |
| 30 | 49·51 | 0·38 | 16·1 | 2·7 | 51·45 | 0·27 | 52·0 | 0·9 | 19·63 | 0·28 | 42·3 | 1·3 |
| Aug. 9 | 49·89 | 0·34 | 18·8 | 2·9 | 51·72 | 0·23 | 51·1 | 0·5 | 19·91 | 0·25 | 41·0 | 0·9 |
| 19 | 50·23 | | 21·7 | | 51·95 | | 50·6 | | 20·16 | | 40·1 | |
| | | 0·29 | | 3·1 | | 0·20 | | 0·1 | | 0·22 | | 0·7 |
| 29 | 50·52 | 0·22 | 24·8 | 3·2 | 52·15 | 0·16 | 50·5 | 0·2 | 20·38 | 0·20 | 39·4 | 0·4 |
| Sept. 8 | 50·74 | 0·17 | 28·0 | 3·2 | 52·31 | 0·13 | 50·7 | 0·5 | 20·58 | 0·15 | 39·0 | 0·1 |
| 18 | 50·91 | 0·12 | 31·2 | 3·1 | 52·44 | 0·08 | 51·2 | 0·8 | 20·73 | 0·12 | 38·9 | 0·3 |
| 28 | 51·03 | | 34·3 | | 52·52 | | 52·0 | | 20·85 | | 39·2 | |
| | | 0·05 | | 3·1 | | 0·04 | | 1·1 | | 0·09 | | 0·5 |
| Oct. 8 | 51·08 | 0·01 | 37·4 | 2·9 | 52·56 | 0·01 | 53·1 | 1·2 | 20·94 | 0·06 | 39·7 | 0·7 |
| 18 | 51·09 | 0·05 | 40·3 | 2·7 | 52·57 | 0·02 | 54·3 | 1·3 | 21·00 | 0·02 | 40·4 | 0·9 |
| 28 | 51·04 | 0·10 | 43·0 | 2·3 | 52·55 | 0·05 | 55·6 | 1·5 | 21·02 | 0·01 | 41·3 | 1·1 |
| Nov. 7 | 50·94 | | 45·3 | | 52·50 | | 57·1 | | 21·01 | | 42·4 | |
| | | 0·15 | | 2·0 | | 0·08 | | 1·3 | | 0·03 | | 1·1 |
| 17 | 50·79 | 0·18 | 47·3 | 1·7 | 52·42 | 0·09 | 58·4 | 1·4 | 20·98 | 0·06 | 43·5 | 1·2 |
| 27 | 50·61 | 0·22 | 49·0 | 1·1 | 52·33 | 0·11 | 59·8 | 1·2 | 20·92 | 0·08 | 44·7 | 1·1 |
| Dec. 7 | 50·39 | 0·25 | 50·1 | 0·7 | 52·22 | 0·13 | 61·0 | 1·0 | 20·84 | 0·09 | 45·8 | 1·0 |
| 17 | 50·14 | | 50·8 | | 52·09 | | 62·0 | | 20·75 | | 46·8 | |
| | | 0·27 | | 0·2 | | 0·13 | | 0·9 | | 0·11 | | 1·0 |
| 27 | 49·87 | 0·29 | 51·0 | 0·3 | 51·96 | 0·13 | 62·9 | 0·6 | 20·64 | 0·13 | 47·8 | 0·8 |
| 37 | 49·58 | | 50·7 | | 51·83 | | 63·5 | | 20·51 | | 48·6 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Eridani. (*Achernar*) | | | | α Arietis. | | | | γ Ceti. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. | |
| | h m<br>1 31 | | ° ′<br>58 0 | | h m<br>1 58 | | ° ′<br>22 43 | | h m<br>2 35 | | ° |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | |
| Jan. 1 | 56·87 | | 106·4 | | 28·51 | | 45·6 | | 18·17 | | 46 | |
| | | 0·35 | | 0·3 | | 0·13 | | 0·4 | | 0·10 | | |
| 11 | 56·52 | | 106·7 | | 28·38 | | 45·2 | | 18·07 | | 46 | |
| | | 0·34 | | 0·2 | | 0·14 | | 0·6 | | 0·13 | | |
| 21 | 56·18 | | 106·5 | | 28·24 | | 44·6 | | 17·94 | | 45 | |
| | | 0·34 | | 0·7 | | 0·15 | | 0·7 | | 0·14 | | |
| 31 | 55·84 | | 105·8 | | 28·09 | | 43·9 | | 17·80 | | 44 | |
| | | 0·32 | | 1·3 | | 0·15 | | 0·9 | | 0·15 | | |
| Feb. 10 | 55·52 | | 104·5 | | 27·94 | | 43·0 | | 17·65 | | 44 | |
| | | 0·30 | | 1·8 | | 0·15 | | 0·9 | | 0·15 | | |
| 20 | 55·22 | | 102·7 | | 27·79 | | 42·1 | | 17·50 | | 43 | |
| | | 0·26 | | 2·2 | | 0·13 | | 1·0 | | 0·14 | | |
| Mar. 2 | 54·96 | | 100·5 | | 27·66 | | 41·1 | | 17·36 | | 43 | |
| | | 0·21 | | 2·6 | | 0·11 | | 1·0 | | 0·12 | | |
| 12 | 54·75 | | 97·9 | | 27·55 | | 40·1 | | 17·24 | | 43 | |
| | | 0·16 | | 3·0 | | 0·08 | | 0·9 | | 0·11 | | |
| 22 | 54·59 | | 94·9 | | 27·47 | | 39·2 | | 17·13 | | 43 | |
| | | 0·10 | | 3·2 | | 0·03 | | 0·9 | | 0·07 | | |
| Apr. 1 | 54·49 | | 91·7 | | 27·44 | | 38·3 | | 17·06 | | 43 | |
| | | 0·03 | | 3·4 | | 0·00 | | 0·7 | | 0·03 | | |
| 11 | 54·46 | | 88·3 | | 27·44 | | 37·6 | | 17·03 | | 44 | |
| | | 0·04 | | 3·8 | | 0·05 | | 0·5 | | 0·01 | | |
| 21 | *54·50 | | 84·5 | | 27·49 | | 37·1 | | 17·04 | | 44 | |
| | | 0·12 | | 3·6 | * | 0·11 | | 0·2 | * | 0·06 | | |
| May 1 | 54·62 | | 80·9 | | 27·60 | | 36·9 | | 17·10 | | 45 | |
| | | 0·18 | | 3·5 | | 0·16 | | 0·0 | | 0·10 | | |
| 11 | 54·80 | | 77·4 | | 27·76 | | 36·9 | | 17·20 | | 46 | |
| | | 0·25 | | 3·4 | | 0·20 | | 0·3 | | 0·15 | | |
| 21 | 55·05 | | 74·0 | | 27·96 | | 37·2 | | 17·35 | | 48 | |
| | | 0·31 | | 3·1 | | 0·24 | | 0·5 | | 0·18 | | |
| 31 | 55·36 | | 70·9 | | 28·20 | | 37·7 | | 17·53 | | 49 | |
| | | 0·36 | | 2·9 | | 0·27 | | 0·9 | | 0·23 | | |
| June 10 | 55·72 | | 68·0 | | 28·47 | | 38·6 | | 17·76 | | 51 | |
| | | 0·41 | | 2·5 | | 0·30 | | 1·1 | | 0·25 | | |
| 20 | 56·13 | | 65·5 | | 28·77 | | 39·7 | | 18·01 | | 52 | |
| | | 0·44 | | 2·2 | | 0·31 | | 1·3 | | 0·27 | | |
| 30 | 56·57 | | 63·3 | | 29·08 | | 41·0 | | 18·28 | | 54 | |
| | | 0·47 | | 1·6 | | 0·33 | | 1·5 | | 0·30 | | |
| July 10 | 57·04 | | 61·7 | | 29·41 | | 42·5 | | 18·58 | | 56 | |
| | | 0·47 | | 1·2 | | 0·33 | | 1·6 | | 0·30 | | |
| 20 | 57·51 | | 60·5 | | 29·74 | | 44·1 | | 18·88 | | 58 | |
| | | 0·46 | | 0·6 | | 0·32 | | 1·7 | | 0·30 | | |
| 30 | 57·97 | | 59·9 | | 30·06 | | 45·8 | | 19·18 | | 59 | |
| | | 0·45 | | 0·0 | | 0·31 | | 1·8 | | 0·30 | | |
| Aug. 9 | 58·42 | | 59·9 | | 30·37 | | 47·6 | | 19·48 | | 61 | |
| | | 0·42 | | 0·6 | | 0·29 | | 1·7 | | 0·28 | | |
| 19 | 58·84 | | 60·5 | | 30·66 | | 49·3 | | 19·76 | | 62 | |
| | | 0·37 | | 1·1 | | 0·27 | | 1·8 | | 0·27 | | |
| 29 | 59·21 | | 61·6 | | 30·93 | | 51·1 | | 20·03 | | 63 | |
| | | 0·32 | | 1·6 | | 0·24 | | 1·6 | | 0·24 | | |
| Sept. 8 | 59·53 | | 63·2 | | 31·17 | | 52·7 | | 20·27 | | 64 | |
| | | 0·27 | | 2·1 | | 0·21 | | 1·5 | | 0·22 | | |
| 18 | 59·80 | | 65·3 | | 31·38 | | 54·2 | | 20·49 | | 64 | |
| | | 0·19 | | 2·5 | | 0·18 | | 1·5 | | 0·20 | | |
| 28 | 59·99 | | 67·8 | | 31·56 | | 55·7 | | 20·69 | | 65 | |
| | | 0·13 | | 2·7 | | 0·14 | | 1·2 | | 0·16 | | |
| Oct. 8 | 60·12 | | 70·5 | | 31·70 | | 56·9 | | 20·85 | | 65 | |
| | | 0·05 | | 2·9 | | 0·12 | | 1·1 | | 0·14 | | |
| 18 | 60·17 | | 73·4 | | 31·82 | | 58·0 | | 20·99 | | 65 | |
| | | 0·02 | | 3·0 | | 0·08 | | 1·0 | | 0·11 | | |
| 28 | 60·15 | | 76·4 | | 31·90 | | 59·0 | | 21·10 | | 64 | |
| | | 0·08 | | 3·0 | | 0·05 | | 0·7 | | 0·08 | | |
| Nov. 7 | 60·07 | | 79·4 | | 31·95 | | 59·7 | | 21·18 | | 64 | |
| | | 0·15 | | 2·8 | | 0·01 | | 0·6 | | 0·04 | | |
| 17 | 59·92 | | 82·2 | | 31·96 | | 60·3 | | 21·22 | | 63 | |
| | | 0·20 | | 2·5 | | 0·01 | | 0·4 | | 0·02 | | |
| 27 | 59·72 | | 84·7 | | 31·95 | | 60·7 | | 21·24 | | 62 | |
| | | 0·25 | | 2·1 | | 0·04 | | 0·2 | | 0·01 | | |
| Dec. 7 | 59·47 | | 86·8 | | 31·91 | | 60·9 | | 21·23 | | 61 | |
| | | 0·28 | | 1·8 | | 0·07 | | 0·0 | | 0·04 | | |
| 17 | 59·19 | | 88·6 | | 31·84 | | 60·9 | | 21·19 | | 61 | |
| | | 0·32 | | 1·2 | | 0·10 | | 0·1 | | 0·07 | | |
| 27 | 58·87 | | 89·8 | | 31·74 | | 60·8 | | 21·12 | | 60 | |
| | | 0·34 | | 0·6 | | 0·11 | | 0·4 | | 0·10 | | |
| 37 | 58·53 | | 90·4 | | 31·63 | | 60·4 | | 21·02 | | 59 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the month. | α Ceti. R. A. | | α Ceti. Dec. North. | | α Persei. R. A. | | α Persei. Dec. North. | | η Tauri. R. A. | | η Tauri. Dec. North. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m 2 54 | | ° ′ 3 28 | | h m 3 13 | | ° ′ 49 18 | | h m 3 38 | | ° ′ 23 37 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| n. 1 | 12·70 | 0·10 | 42·0 | 0·8 | 20·04 | 0·16 | 26·8 | 0·8 | 19·07 | 0·07 | 20·4 | 0·1 |
| 11 | 12·60 | 0·12 | 41·2 | 0·7 | 19·88 | 0·20 | 27·6 | 0·5 | 19·00 | 0·12 | 20·3 | 0·1 |
| 21 | 12·48 | 0·14 | 40·5 | 0·6 | 19·68 | 0·23 | 28·1 | 0·1 | 18·88 | 0·14 | 20·2 | 0·3 |
| 31 | 12·34 | | 39·9 | | 19·45 | | 28·2 | | 18·74 | | 19·9 | |
| | | 0·15 | | 0·6 | | 0·25 | | 0·3 | | 0·16 | | 0·4 |
| eb. 10 | 12·19 | 0·16 | 39·3 | 0·4 | 19·20 | 0·26 | 27·9 | 0·6 | 18·58 | 0·17 | 19·5 | 0·5 |
| 20 | 12·03 | 0·15 | 38·9 | 0·3 | 18·94 | 0·25 | 27·3 | 1·0 | 18·41 | 0·18 | 19·0 | 0·5 |
| ar. 2 | 11·88 | 0·13 | 38·6 | 0·2 | 18·69 | 0·24 | 26·3 | 1·3 | 18·23 | 0·17 | 18·5 | 0·7 |
| 12 | 11·75 | | 38·4 | | 18·45 | | 25·0 | | 18·06 | | 17·8 | |
| | | 0·12 | | 0·0 | | 0·21 | | 1·5 | | 0·16 | | 0·7 |
| 22 | 11·63 | 0·09 | 38·4 | 0·2 | 18·24 | 0·16 | 23·5 | 1·7 | 17·90 | 0·12 | 17·1 | 0·6 |
| or. 1 | 11·54 | 0·05 | 38·6 | 0·3 | 18·08 | 0·10 | 21·8 | 1·8 | 17·78 | 0·09 | 16·5 | 0·7 |
| 11 | 11·49 | 0·01 | 38·9 | 0·6 | 17·98 | 0·04 | 20·0 | 1·9 | 17·69 | 0·05 | 15·8 | 0·5 |
| 21 | 11·48 | | 39·5 | | 17·94 | | 18·1 | | 17·64 | | 15·3 | |
| | | 0·04 | | 0·8 | | 0·02 | | 1·8 | | 0·00 | | 0·5 |
| ay 1 | 11·52 | 0·09 | 40·3 | 1·1 | *17·96 | 0·11 | 16·3 | 1·8 | 17·64 | 0·05 | 14·8 | 0·3 |
| 11 | *11·61 | 0·13 | 41·4 | 1·2 | *18·07 | 0·17 | 14·5 | 1·5 | 17·69 | 0·11 | 14·5 | 0·1 |
| 21 | 11·74 | 0·17 | 42·6 | 1·3 | 18·24 | 0·23 | 13·0 | 1·2 | *17·80 | 0·15 | 14·4 | 0·1 |
| 31 | 11·91 | | 43·9 | | 18·47 | | 11·8 | | 17·95 | | 14·5 | |
| | | 0·21 | | 1·5 | | 0·28 | | 1·0 | | 0·20 | | 0·3 |
| ne 10 | 12·12 | 0·24 | 45·4 | 1·6 | 18·75 | 0·34 | 10·8 | 0·7 | 18·15 | 0·23 | 14·8 | 0·4 |
| 20 | 12·36 | 0·27 | 47·0 | 1·7 | 19·09 | 0·37 | 10·1 | 0·3 | 18·38 | 0·27 | 15·2 | 0·6 |
| 30 | 12·63 | 0·29 | 48·7 | 1·7 | 19·46 | 0·40 | 9·8 | 0·0 | 18·65 | 0·29 | 15·8 | 0·8 |
| ly 10 | 12·92 | | 50·4 | | 19·86 | | 9·8 | | 18·94 | | 16·6 | |
| | | 0·29 | | 1·7 | | 0·43 | | 0·4 | | 0·31 | | 1·0 |
| 20 | 13·21 | 0·30 | 52·1 | 1·6 | 20·29 | 0·44 | 10·2 | 0·6 | 19·25 | 0·32 | 17·6 | 1·0 |
| 30 | 13·51 | 0·30 | 53·7 | 1·4 | 20·73 | 0·43 | 10·8 | 1·0 | 19·57 | 0·32 | 18·6 | 1·1 |
| ug. 9 | 13·81 | 0·29 | 55·1 | 1·3 | 21·16 | 0·43 | 11·8 | 1·2 | 19·89 | 0·32 | 19·7 | 1·1 |
| 19 | 14·10 | | 56·4 | | 21·59 | | 13·0 | | 20·21 | | 20·8 | |
| | | 0·27 | | 1·1 | | 0·41 | | 1·4 | | 0·31 | | 1·1 |
| 29 | 14·37 | 0·26 | 57·5 | 0·8 | 22·00 | 0·39 | 14·4 | 1·7 | 20·52 | 0·30 | 21·9 | 1·1 |
| ept. 8 | 14·63 | 0·23 | 58·3 | 0·6 | 22·39 | 0·37 | 16·1 | 1·8 | 20·82 | 0·29 | 23·0 | 1·0 |
| 18 | 14·86 | 0·21 | 58·9 | 0·3 | 22·76 | 0·34 | 17·9 | 1·9 | 21·11 | 0·26 | 24·0 | 1·0 |
| 28 | 15·07 | | 59·2 | | 23·10 | | 19·8 | | 21·37 | | 25·0 | |
| | | 0·19 | | 0·1 | | 0·30 | | 2·0 | | 0·24 | | 0·8 |
| ct. 8 | 15·26 | 0·15 | 59·3 | 0·2 | 23·40 | 0·26 | 21·8 | 2·1 | 21·61 | 0·22 | 25·8 | 0·8 |
| 18 | 15·41 | 0·13 | 59·1 | 0·3 | 23·66 | 0·22 | 23·9 | 2·1 | 21·83 | 0·19 | 26·6 | 0·6 |
| 28 | 15·54 | 0·09 | 58·8 | 0·6 | 23·88 | 0·18 | 26·0 | 2·1 | 22·02 | 0·16 | 27·2 | 0·6 |
| ov. 7 | 15·63 | | 58·2 | | 24·06 | | 28·1 | | 22·18 | | 27·8 | |
| | | 0·07 | | 0·6 | | 0·12 | | 2·1 | | 0·12 | | 0·4 |
| 17 | 15·70 | 0·04 | 57·6 | 0·8 | 24·18 | 0·08 | 30·2 | 1·9 | 22·30 | 0·09 | 28·2 | 0·4 |
| 27 | 15·74 | 0·00 | 56·8 | 0·8 | 24·26 | 0·02 | 32·1 | 1·7 | 22·39 | 0·06 | 28·6 | 0·3 |
| ec. 7 | 15·74 | 0·03 | 56·0 | 0·9 | 24·28 | 0·03 | 33·8 | 1·6 | 22·45 | 0·02 | 28·9 | 0·2 |
| 17 | 15·71 | | 55·1 | | 24·25 | | 35·4 | | 22·47 | | 29·1 | |
| | | 0·05 | | 0·8 | | 0·08 | | 1·3 | | 0·03 | | 0·1 |
| 27 | 15·66 | 0·09 | 54·3 | 0·8 | 24·17 | 0·14 | 36·7 | 1·0 | 22·44 | 0·06 | 29·2 | 0·0 |
| 37 | 15·57 | | 53·5 | | 24·03 | | 37·7 | | 22·38 | | 29·2 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | $\gamma^1$ Eridani. | | | | α Tauri. (*Aldebaran*) | | | | α Aurigæ. (*Capella*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 3 50 | | ° ′ 13 56 | | h m 4 27 | | ° ′ 16 11 | | h m 5 5 | | ° ′ 45 49 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 49·84 | 0·08 | 77·6 | 1·5 | 4·28 | 0·04 | 33·3 | 0·3 | 18·16 | 0·02 | 63·7 | 1·2 |
| 11 | 49·76 | 0·11 | 79·1 | 1·2 | 4·24 | 0·08 | 33·0 | 0·3 | 18·14 | 0·08 | 65·0 | 1·1 |
| 21 | 49·65 | 0·15 | 80·3 | 1·0 | 4·16 | 0·11 | 32·7 | 0·4 | 18·06 | 0·14 | 66·1 | 0·9 |
| 31 | 49·50 | | 81·3 | | 4·05 | | 32·3 | | 17·92 | | 67·0 | |
| | | 0·16 | | 0·7 | | 0·15 | | 0·3 | | 0·18 | | 0·4 |
| Feb. 10 | 49·34 | 0·18 | 82·0 | 0·4 | 3·90 | 0·16 | 32·0 | 0·4 | 17·74 | 0·22 | 67·6 | 0·4 |
| 20 | 49·16 | 0·18 | 82·4 | 0·1 | 3·74 | 0·18 | 31·6 | 0·3 | 17·52 | 0·25 | 68·0 | 0·1 |
| Mar. 2 | 48·98 | 0·18 | 82·5 | 0·2 | 3·56 | 0·18 | 31·3 | 0·4 | 17·27 | 0·26 | 68·1 | 0·2 |
| 12 | 48·80 | | 82·3 | | 3·38 | | 30·9 | | 17·01 | | 67·9 | |
| | | 0·16 | | 0·4 | | 0·17 | | 0·3 | | 0·25 | | 0·5 |
| 22 | 48·64 | 0·14 | 81·9 | 0·8 | 3·21 | 0·15 | 30·6 | 0·3 | 16·76 | 0·24 | 67·4 | 0·2 |
| Apr. 1 | 48·50 | 0·11 | 81·1 | 1·1 | 3·06 | 0·12 | 30·3 | 0·2 | 16·52 | 0·20 | 66·6 | 1·0 |
| 11 | 48·39 | 0·07 | 80·0 | 1·3 | 2·94 | 0·09 | 30·1 | 0·2 | 16·32 | 0·16 | 65·6 | 1·2 |
| 21 | 48·32 | | 78·7 | | 2·85 | | 29·9 | | 16·16 | | 64·4 | |
| | | 0·03 | | 1·5 | | 0·04 | | 0·1 | | 0·11 | | 1·2 |
| May 1 | 48·29 | 0·01 | 77·2 | 1·8 | 2·81 | 0·00 | 29·8 | 0·1 | 16·05 | 0·06 | 63·1 | 1·4 |
| 11 | 48·30 | 0·07 | 75·4 | 2·2 | 2·81 | 0·05 | 29·9 | 0·2 | 15·99 | 0·01 | 61·7 | 1·2 |
| 21 | *48·37 | 0·11 | 73·2 | 2·1 | 2·86 | 0·10 | 30·1 | 0·4 | 16·00 | 0·07 | 60·2 | 1·4 |
| 31 | 48·48 | | 71·1 | | *2·96 | | 30·5 | | 16·07 | | 58·8 | |
| | | 0·15 | | 2·2 | | 0·14 | | 0·5 | * | 0·15 | | 1·2 |
| June 10 | 48·63 | 0·19 | 68·9 | 2·3 | 3·10 | 0·19 | 31·0 | 0·7 | 16·22 | 0·19 | 57·3 | 1·2 |
| 20 | 48·82 | 0·22 | 66·6 | 2·2 | 3·29 | 0·22 | 31·7 | 0·8 | 16·41 | 0·25 | 56·1 | 1·0 |
| 30 | 49·04 | 0·25 | 64·4 | 2·1 | 3·51 | 0·24 | 32·5 | 0·8 | 16·66 | 0·29 | 55·1 | 0·9 |
| July 10 | 49·29 | | 62·3 | | 3·75 | | 33·3 | | 16·95 | | 54·2 | |
| | | 0·27 | | 2·0 | | 0·27 | | 0·9 | | 0·32 | | 0·7 |
| 20 | 49·56 | 0·29 | 60·3 | 1·8 | 4·02 | 0·29 | 34·2 | 0·9 | 17·27 | 0·36 | 53·5 | 0·4 |
| 30 | 49·85 | 0·29 | 58·5 | 1·5 | 4·31 | 0·30 | 35·1 | 1·0 | 17·63 | 0·38 | 53·1 | 0·2 |
| Aug. 9 | 50·14 | 0·29 | 57·0 | 1·1 | 4·61 | 0·30 | 36·1 | 0·9 | 18·01 | 0·39 | 52·8 | 0·1 |
| 19 | 50·43 | | 55·9 | | 4·91 | | 37·0 | | 18·40 | | 52·7 | |
| | | 0·29 | | 0·9 | | 0·30 | | 0·8 | | 0·40 | | 0·1 |
| 29 | 50·72 | 0·28 | 55·0 | 0·4 | 5·21 | 0·30 | 37·8 | 0·7 | 18·80 | 0·41 | 52·8 | 0·2 |
| Sept. 8 | 51·00 | 0·26 | 54·6 | 0·1 | 5·51 | 0·29 | 38·5 | 0·5 | 19·21 | 0·40 | 53·1 | 0·3 |
| 18 | 51·26 | 0·25 | 54·5 | 0·4 | 5·80 | 0·28 | 39·0 | 0·5 | 19·61 | 0·40 | 53·6 | 0·4 |
| 28 | 51·51 | | 54·9 | | 6·08 | | 39·5 | | 20·01 | | 54·2 | |
| | | 0·22 | | 0·7 | | 0·26 | | 0·3 | | 0·38 | | 0·4 |
| Oct. 8 | 51·73 | 0·20 | 55·6 | 1·1 | 6·34 | 0·24 | 39·8 | 0·1 | 20·39 | 0·37 | 55·0 | 0·2 |
| 18 | 51·93 | 0·17 | 56·7 | 1·4 | 6·58 | 0·23 | 39·9 | 0·1 | 20·76 | 0·34 | 55·9 | 1·0 |
| 28 | 52·10 | 0·14 | 58·1 | 1·6 | 6·81 | 0·19 | 40·0 | 0·1 | 21·10 | 0·31 | 56·9 | 1·2 |
| Nov. 7 | 52·24 | | 59·7 | | 7·00 | | 39·9 | | 21·41 | | 58·1 | |
| | | 0·11 | | 1·8 | | 0·17 | | 0·2 | | 0·28 | | 1·2 |
| 17 | 52·35 | 0·08 | 61·5 | 1·9 | 7·17 | 0·14 | 39·7 | 0·2 | 21·69 | 0·23 | 59·4 | 1·2 |
| 27 | 52·43 | 0·05 | 63·4 | 1·9 | 7·31 | 0·10 | 39·5 | 0·3 | 21·92 | 0·18 | 60·7 | 1·1 |
| Dec. 7 | 52·48 | 0·00 | 65·3 | 1·9 | 7·41 | 0·06 | 39·2 | 0·3 | 22·10 | 0·13 | 62·1 | 1·1 |
| 17 | 52·48 | | 67·2 | | 7·47 | | 38·9 | | 22·23 | | 63·5 | |
| | | 0·03 | | 1·7 | | 0·02 | | 0·3 | | 0·07 | | 1·1 |
| 27 | 52·45 | 0·07 | 68·9 | 1·6 | 7·49 | 0·02 | 38·6 | 0·4 | 22·30 | 0·09 | 64·9 | 1·1 |
| 37 | 52·38 | | 70·5 | | 7·47 | | 38·2 | | 22·30 | | 66·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the month. | β Orionis. (*Rigel*) R. A. | | Dec. *South.* | | β Tauri. R. A. | | Dec. *North.* | | δ Orionis. R. A. | | Dec. *South.* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m 5 7 | | ° ′ 8 22 | | h m 5 16 | | ° ′ 28 28 | | h m 5 24 | | ° ′ 0 25 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 7·67 | 0·03 | 73·7 | 1·7 | 32·55 | 0·01 | 12·5 | 0·3 | 7·62 | 0·00 | 13·2 | 1·3 |
| 11 | 7·64 | 0·06 | 75·4 | 1·4 | 32·56 | 0·05 | 12·8 | 0·3 | 7·62 | 0·04 | 14·5 | 1·1 |
| 21 | 7·58 | 0·10 | 76·8 | 1·2 | 32·51 | 0·09 | 13·1 | 0·3 | 7·58 | 0·08 | 15·6 | 1·0 |
| 31 | 7·48 | | 78·0 | | 32·42 | | 13·4 | | 7·50 | | 16·6 | |
| | | 0·13 | | 1·0 | | 0·14 | | 0·1 | | 0·12 | | 0·8 |
| Feb. 10 | 7·35 | 0·16 | 79·0 | 0·7 | 32·28 | 0·16 | 13·5 | 0·1 | 7·38 | 0·15 | 17·4 | 0·6 |
| 20 | 7·19 | 0·18 | 79·7 | 0·5 | 32·12 | 0·19 | 13·6 | 0·1 | 7·23 | 0·17 | 18·0 | 0·5 |
| Mar. 2 | 7·01 | 0·19 | 80·2 | 0·2 | 31·93 | 0·20 | 13·5 | 0·1 | 7·06 | 0·18 | 18·5 | 0·2 |
| 12 | 6·82 | | 80·4 | | 31·73 | | 13·4 | | 6·88 | | 18·7 | |
| | | 0·18 | | 0·1 | | 0·20 | | 0·3 | | 0·18 | | 0·1 |
| 22 | 6·64 | 0·17 | 80·3 | 0·3 | 31·53 | 0·18 | 13·1 | 0·4 | 6·70 | 0·17 | 18·8 | 0·1 |
| Apr. 1 | 6·47 | 0·15 | 80·0 | 0·5 | 31·35 | 0·17 | 12·7 | 0·5 | 6·53 | 0·15 | 18·7 | 0·3 |
| 11 | 6·32 | 0·12 | 79·5 | 0·8 | 31·18 | 0·13 | 12·2 | 0·6 | 6·38 | 0·13 | 18·4 | 0·5 |
| 21 | 6·20 | | 78·7 | | 31·05 | | 11·6 | | 6·25 | | 17·9 | |
| | | 0·09 | | 1·0 | | 0·09 | | 0·5 | | 0·09 | | 0·7 |
| May 1 | 6·11 | 0·05 | 77·7 | 1·3 | 30·96 | 0·04 | 11·1 | 0·6 | 6·16 | 0·06 | 17·2 | 0·8 |
| 11 | 6·06 | 0·01 | 76·4 | 1·4 | 30·92 | 0·00 | 10·5 | 0·5 | 6·10 | 0·01 | 16·4 | 1·0 |
| 21 | 6·05 | 0·04 | 75·0 | 1·6 | 30·92 | 0·05 | 10·0 | 0·5 | 6·09 | 0·03 | 15·4 | 1·1 |
| 31 | 6·09 | | 73·4 | | 30·97 | | 9·5 | | 6·12 | | 14·3 | |
| | * | 0·09 | | 1·9 | | 0·10 | | 0·4 | | 0·07 | | 1·3 |
| June 10 | 6·18 | 0·13 | 71·5 | 1·9 | 31·07 | 0·17 | 9·1 | 0·2 | 6·19 | 0·13 | 13·0 | 1·5 |
| 20 | 6·31 | 0·16 | 69·6 | 1·8 | *31·24 | 0·19 | 8·9 | 0·2 | *6·32 | 0·15 | 11·5 | 1·4 |
| 30 | 6·47 | 0·20 | 67·8 | 1·9 | 31·43 | 0·23 | 8·7 | 0·0 | 6·47 | 0·19 | 10·1 | 1·4 |
| July 10 | 6·67 | | 65·9 | | 31·66 | | 8·7 | | 6·66 | | 8·7 | |
| | | 0·22 | | 1·8 | | 0·25 | | 0·0 | | 0·21 | | 1·4 |
| 20 | 6·89 | 0·24 | 64·1 | 1·6 | 31·91 | 0·29 | 8·7 | 0·2 | 6·87 | 0·24 | 7·3 | 1·4 |
| 30 | 7·13 | 0·26 | 62·5 | 1·5 | 32·20 | 0·30 | 8·9 | 0·2 | 7·11 | 0·25 | 5·9 | 1·2 |
| Aug. 9 | 7·39 | 0·28 | 61·0 | 1·2 | 32·50 | 0·31 | 9·1 | 0·2 | 7·36 | 0·27 | 4·7 | 1·0 |
| 19 | 7·67 | | 59·8 | | 32·81 | | 9·3 | | 7·63 | | 3·7 | |
| | | 0·28 | | 0·9 | | 0·33 | | 0·4 | | 0·28 | | 0·8 |
| 29 | 7·95 | 0·28 | 58·9 | 0·6 | 33·14 | 0·32 | 9·7 | 0·3 | 7·91 | 0·28 | 2·9 | 0·5 |
| Sept. 8 | 8·23 | 0·28 | 58·3 | 0·2 | 33·46 | 0·33 | 10·0 | 0·3 | 8·19 | 0·28 | 2·4 | 0·3 |
| 18 | 8·51 | 0·28 | 58·1 | 0·1 | 33·79 | 0·32 | 10·3 | 0·3 | 8·47 | 0·28 | 2·1 | 0·1 |
| 28 | 8·79 | | 58·2 | | 34·11 | | 10·6 | | 8·75 | | 2·2 | |
| | | 0·26 | | 0·5 | | 0·31 | | 0·3 | | 0·27 | | 0·3 |
| Oct. 8 | 9·05 | 0·25 | 58·7 | 0·9 | 34·42 | 0·30 | 10·9 | 0·3 | 9·02 | 0·26 | 2·5 | 0·6 |
| 18 | 9·30 | 0·24 | 59·6 | 1·1 | 34·72 | 0·29 | 11·2 | 0·3 | 9·28 | 0·25 | 3·1 | 0·9 |
| 28 | 9·54 | 0·21 | 60·7 | 1·5 | 35·01 | 0·26 | 11·5 | 0·2 | 9·53 | 0·23 | 4·0 | 1·1 |
| Nov. 7 | 9·75 | | 62·2 | | 35·27 | | 11·7 | | 9·76 | | 5·1 | |
| | | 0·18 | | 1·6 | | 0·23 | | 0·3 | | 0·20 | | 1·3 |
| 17 | 9·93 | 0·16 | 63·8 | 1·8 | 35·50 | 0·20 | 12·0 | 0·3 | 9·96 | 0·18 | 6·4 | 1·4 |
| 27 | 10·09 | 0·12 | 65·6 | 1·9 | 35·70 | 0·17 | 12·3 | 0·3 | 10·14 | 0·14 | 7·8 | 1·5 |
| Dec. 7 | 10·21 | 0·08 | 67·5 | 1·8 | 35·87 | 0·12 | 12·6 | 0·4 | 10·28 | 0·11 | 9·3 | 1·4 |
| 17 | 10·29 | | 69·3 | | 35·99 | | 13·0 | | 10·39 | | 10·7 | |
| | | 0·04 | | 1·8 | | 0·08 | | 0·3 | | 0·06 | | 1·4 |
| 27 | 10·33 | 0·00 | 71·1 | 1·7 | 36·07 | 0·03 | 13·3 | 0·4 | 10·45 | 0·02 | 12·1 | 1·3 |
| 37 | 10·33 | | 72·8 | | 36·10 | | 13·7 | | 10·47 | | 13·4 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Leporis. | | | | ε Orionis. | | | | α Columbæ | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | | R. A. | Dec. |
| | h m 5 25 | | ° ′ 17 56 | | h m 5 28 | | ° ′ 1 18 | | h m 5 34 | ° 34 |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | ″ |
| Jan. 1 | 55·94 | 0·02 | 23·0 | 2·1 | 23·28 | 0·00 | 25·8 | 1·3 | 4·59 | 0·04 | 47 |
| 11 | 55·92 | 0·06 | 25·1 | 1·9 | 23·28 | 0·04 | 27·1 | 1·2 | 4·55 | 0·08 | 50 |
| 21 | 55·86 | 0·10 | 27·0 | 1·6 | 23·24 | 0·08 | 28·3 | 1·0 | 4·47 | 0·14 | 53 |
| 31 | 55·76 | | 28·6 | | 23·16 | | 29·3 | | 4·33 | | 55 |
| | | 0·14 | | 1·3 | | 0·12 | | 0·8 | | 0·17 | |
| Feb. 10 | 55·62 | | 29·9 | | 23·04 | | 30·1 | | 4·16 | | 56 |
| 20 | 55·45 | 0·17 | 30·8 | 0·9 | 22·90 | 0·14 | 30·8 | 0·7 | 3·95 | 0·21 | 58 |
| Mar. 2 | 55·27 | 0·18 | 31·5 | 0·7 | 22·73 | 0·17 | 31·2 | 0·4 | 3·72 | 0·23 | 59 |
| 12 | 55·07 | 0·20 | 31·8 | 0·3 | 22·55 | 0·18 | 31·5 | 0·3 | 3·48 | 0·24 | 59 |
| | | 0·20 | | 0·1 | | 0·18 | | 0·1 | | 0·25 | |
| 22 | 54·87 | | 31·7 | | 22·37 | | 31·6 | | 3·23 | | 59 |
| Apr. 1 | 54·68 | 0·19 | 31·4 | 0·3 | 22·19 | 0·18 | 31·5 | 0·1 | 2·99 | 0·24 | 58 |
| 11 | 54·50 | 0·18 | 30·7 | 0·7 | 22·04 | 0·15 | 31·2 | 0·3 | 2·77 | 0·22 | 57 |
| 21 | 54·36 | 0·14 | 29·7 | 1·0 | 21·91 | 0·13 | 30·7 | 0·5 | 2·58 | 0·19 | 56 |
| | | 0·12 | | 1·3 | | 0·10 | | 0·7 | | 0·16 | |
| May 1 | 54·24 | | 28·4 | | 21·81 | | 30·0 | | 2·42 | | 54 |
| 11 | 54·17 | 0·07 | 26·9 | 1·5 | 21·75 | 0·06 | 29·1 | 0·9 | 2·31 | 0·11 | 52 |
| 21 | 54·14 | 0·03 | 25·1 | 1·8 | 21·74 | 0·01 | 28·1 | 1·0 | 2·24 | 0·07 | 50 |
| 31 | 54·15 | 0·01 | 23·1 | 2·0 | 21·76 | 0·02 | 26·9 | 1·2 | 2·22 | 0·02 | 48 |
| | | 0·05 | | 2·1 | | 0·07 | | 1·3 | | 0·02 | |
| June 10 | 54·20 | | 21·0 | | 21·83 | | 25·6 | | 2·24 | | 45 |
| 20 | *54·31 | 0·11 | 18·5 | 2·5 | *21·95 | 0·12 | 24·1 | 1·5 | *2·32 | 0·08 | 42 |
| 30 | 54·45 | 0·14 | 16·2 | 2·3 | 22·10 | 0·15 | 22·6 | 1·5 | 2·45 | 0·13 | 39 |
| July 10 | 54·63 | 0·18 | 14·0 | 2·2 | 22·28 | 0·18 | 21·1 | 1·5 | 2·61 | 0·16 | 36 |
| | | 0·20 | | 2·1 | | 0·21 | | 1·4 | | 0·20 | |
| 20 | 54·83 | | 11·9 | | 22·49 | | 19·7 | | 2·81 | | 33 |
| 30 | 55·06 | 0·23 | 9·9 | 2·0 | 22·72 | 0·23 | 18·3 | 1·4 | 3·05 | 0·24 | 31 |
| Aug. 9 | 55·31 | 0·25 | 8·2 | 1·7 | 22·98 | 0·26 | 17·1 | 1·2 | 3·31 | 0·26 | 29 |
| 19 | 55·58 | 0·27 | 6·8 | 1·4 | 23·24 | 0·26 | 16·1 | 1·0 | 3·59 | 0·28 | 27 |
| | | 0·28 | | 1·1 | | 0·28 | | 0·8 | | 0·30 | |
| 29 | 55·86 | | 5·7 | | 23·52 | | 15·3 | | 3·89 | | 26 |
| Sept. 8 | 56·15 | 0·29 | 5·0 | 0·7 | 23·80 | 0·28 | 14·7 | 0·6 | 4·20 | 0·31 | 25 |
| 18 | 56·44 | 0·29 | 4·8 | 0·2 | 24·08 | 0·28 | 14·5 | 0·2 | 4·52 | 0·32 | 25 |
| 28 | 56·72 | 0·28 | 5·0 | 0·2 | 24·36 | 0·28 | 14·6 | 0·1 | 4·83 | 0·31 | 25 |
| | | 0·28 | | 0·7 | | 0·27 | | 0·3 | | 0·31 | |
| Oct. 8 | 57·00 | | 5·7 | | 24·63 | | 14·9 | | 5·14 | | 26 |
| 18 | 57·26 | 0·26 | 6·8 | 1·1 | 24·90 | 0·27 | 15·6 | 0·7 | 5·43 | 0·29 | 27 |
| 28 | 57·51 | 0·25 | 8·3 | 1·5 | 25·15 | 0·25 | 16·5 | 0·9 | 5·70 | 0·27 | 29 |
| Nov. 7 | 57·74 | 0·23 | 10·1 | 1·8 | 25·38 | 0·23 | 17·7 | 1·2 | 5·95 | 0·25 | 32 |
| | | 0·19 | | 2·1 | | 0·20 | | 1·3 | | 0·21 | |
| 17 | 57·93 | | 12·2 | | 25·58 | | 19·0 | | 6·16 | | 34 |
| 27 | 58·10 | 0·17 | 14·5 | 2·3 | 25·76 | 0·18 | 20·4 | 1·4 | 6·34 | 0·18 | 37 |
| Dec. 7 | 58·24 | 0·14 | 16·8 | 2·3 | 25·91 | 0·15 | 22·0 | 1·6 | 6·48 | 0·14 | 40 |
| 17 | 58·33 | 0·09 | 19·2 | 2·4 | 26·02 | 0·11 | 23·5 | 1·5 | 6·56 | 0·08 | 43 |
| | | 0·05 | | 2·3 | | 0·07 | | 1·5 | | 0·04 | |
| 27 | 58·38 | | 21·5 | | 26·09 | | 25·0 | | 6·60 | | 46 |
| | 58·39 | 0·01 | 23·7 | 2·2 | 26·11 | 0·02 | 26·4 | 1·4 | 6·59 | 0·01 | 49 |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Orionis. R. A. | | α Orionis. Dec. North. | | μ Geminorum. R. A. | | μ Geminorum. Dec. North. | | α Argus. (Canopus) R. A. | | α Argus. (Canopus) Dec. South. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m | | ° ′ | | h m | | ° ′ | | h m | | ° ′ | |
| | 5 46 | | 7 22 | | 6 13 | | 22 35 | | 6 20 | | 52 36 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 49·31 | | 15·9 | | 37·60 | | 8·8 | | 33·50 | | 55·1 | |
| | | 0·02 | | 0·9 | | 0·06 | | 0·0 | | 0·04 | | 3·5 |
| 11 | 49·33 | | 15·0 | | 37·66 | | 8·8 | | 33·46 | | 58·6 | |
| | | 0·02 | | 0·8 | | 0·01 | | 0·0 | | 0·11 | | 3·2 |
| 21 | 49·31 | | 14·2 | | 37·67 | | 8·8 | | 33·35 | | 61·8 | |
| | | 0·06 | | 0·7 | | 0·04 | | 0·1 | | 0·17 | | 2·9 |
| 31 | 49·25 | | 13·5 | | 37·63 | | 8·9 | | 33·18 | | 64·7 | |
| | | 0·10 | | 0·5 | | 0·09 | | 0·1 | | 0·24 | | 2·4 |
| Feb. 10 | 49·15 | | 13·0 | | 37·54 | | 9·0 | | 32·94 | | 67·1 | |
| | | 0·14 | | 0·5 | | 0·13 | | 0·1 | | 0·28 | | 2·1 |
| 20 | 49·01 | | 12·5 | | 37·41 | | 9·1 | | 32·66 | | 69·2 | |
| | | 0·16 | | 0·3 | | 0·16 | | 0·1 | | 0·32 | | 1·5 |
| Mar. 2 | 48·85 | | 12·2 | | 37·25 | | 9·2 | | 32·34 | | 70·7 | |
| | | 0·18 | | 0·2 | | 0·18 | | 0·0 | | 0·34 | | 1·1 |
| 12 | 48·67 | | 12·0 | | 37·07 | | 9·2 | | 32·00 | | 71·8 | |
| | | 0·18 | | 0·1 | | 0·19 | | 0·0 | | 0·36 | | 0·5 |
| 22 | 48·49 | | 11·9 | | 36·88 | | 9·2 | | 31·64 | | 72·3 | |
| | | 0·17 | | 0·0 | | 0·19 | | 0·0 | | 0·36 | | 0·1 |
| Apr. 1 | 48·32 | | 11·9 | | 36·69 | | 9·2 | | 31·28 | | 72·2 | |
| | | 0·16 | | 0·1 | | 0·18 | | 0·1 | | 0·35 | | 0·5 |
| 11 | 48·16 | | 12·0 | | 36·51 | | 9·1 | | 30·93 | | 71·7 | |
| | | 0·14 | | 0·2 | | 0·15 | | 0·2 | | 0·32 | | 1·0 |
| 21 | 48·02 | | 12·2 | | 36·36 | | 8·9 | | 30·61 | | 70·7 | |
| | | 0·10 | | 0·3 | | 0·12 | | 0·2 | | 0·29 | | 1·5 |
| May 1 | 47·92 | | 12·5 | | 36·24 | | 8·7 | | 30·32 | | 69·2 | |
| | | 0·07 | | 0·4 | | 0·09 | | 0·2 | | 0·25 | | 1·9 |
| 11 | 47·85 | | 12·9 | | 36·15 | | 8·5 | | 30·07 | | 67·3 | |
| | | 0·02 | | 0·6 | | 0·05 | | 0·2 | | 0·19 | | 2·3 |
| 21 | 47·83 | | 13·5 | | 36·10 | | 8·3 | | 29·88 | | 65·0 | |
| | | 0·01 | | 0·7 | | 0·00 | | 0·1 | | 0·14 | | 2·6 |
| 31 | 47·84 | | 14·2 | | 36·10 | | 8·2 | | 29·74 | | 62·4 | |
| | | 0·06 | | 0·8 | | 0·04 | | 0·1 | | 0·09 | | 2·9 |
| June 10 | 47·90 | | 15·0 | | 36·14 | | 8·1 | | 29·65 | | 59·5 | |
| | | 0·11 | | 0·9 | | 0·08 | | 0·1 | | 0·02 | | 3·0 |
| 20 | *48·01 | | 15·9 | | 36·22 | | 8·0 | | 29·63 | | 56·5 | |
| | | 0·14 | | 0·9 | | 0·14 | | 0·0 | | 0·05 | | 3·5 |
| 30 | 48·15 | | 16·8 | | *36·36 | | 8·0 | | *29·68 | | 53·0 | |
| | | 0·17 | | 1·0 | | 0·17 | | 0·1 | | 0·10 | | 3·2 |
| July 10 | 48·32 | | 17·8 | | 36·53 | | 7·9 | | 29·78 | | 49·8 | |
| | | 0·20 | | 1·0 | | 0·20 | | 0·1 | | 0·16 | | 3·1 |
| 20 | 48·52 | | 18·8 | | 36·73 | | 8·0 | | 29·94 | | 46·7 | |
| | | 0·23 | | 0·9 | | 0·22 | | 0·1 | | 0·22 | | 2·9 |
| 30 | 48·75 | | 19·7 | | 36·95 | | 8·1 | | 30·16 | | 43·8 | |
| | | 0·25 | | 0·9 | | 0·25 | | 0·0 | | 0·26 | | 2·7 |
| Aug. 9 | 49·00 | | 20·6 | | 37·20 | | 8·1 | | 30·42 | | 41·1 | |
| | | 0·26 | | 0·7 | | 0·27 | | 0·1 | | 0·31 | | 2·2 |
| 19 | 49·26 | | 21·3 | | 37·47 | | 8·2 | | 30·73 | | 38·9 | |
| | | 0·28 | | 0·6 | | 0·29 | | 0·0 | | 0·34 | | 1·9 |
| 29 | 49·54 | | 21·9 | | 37·76 | | 8·2 | | 31·07 | | 37·0 | |
| | | 0·28 | | 0·4 | | 0·30 | | 0·0 | | 0·37 | | 1·2 |
| Sept. 8 | 49·82 | | 22·3 | | 38·06 | | 8·2 | | 31·44 | | 35·8 | |
| | | 0·29 | | 0·1 | | 0·30 | | 0·1 | | 0·39 | | 0·7 |
| 18 | 50·11 | | 22·4 | | 38·36 | | 8·1 | | 31·83 | | 35·1 | |
| | | 0·28 | | 0·0 | | 0·31 | | 0·2 | | 0·40 | | 0·1 |
| 28 | 50·39 | | 22·4 | | 38·67 | | 7·9 | | 32·23 | | 35·0 | |
| | | 0·29 | | 0·3 | | 0·32 | | 0·2 | | 0·41 | | 0·5 |
| Oct. 8 | 50·68 | | 22·1 | | 38·99 | | 7·7 | | 32·64 | | 35·5 | |
| | | 0·28 | | 0·5 | | 0·31 | | 0·3 | | 0·39 | | 1·2 |
| 18 | 50·96 | | 21·6 | | 39·30 | | 7·4 | | 33·03 | | 36·7 | |
| | | 0·26 | | 0·6 | | 0·30 | | 0·4 | | 0·38 | | 1·8 |
| 28 | 51·22 | | 21·0 | | 39·60 | | 7·0 | | 33·41 | | 38·5 | |
| | | 0·25 | | 0·9 | | 0·29 | | 0·4 | | 0·35 | | 2·4 |
| Nov. 7 | 51·47 | | 20·1 | | 39·89 | | 6·6 | | 33·76 | | 40·9 | |
| | | 0·23 | | 1·0 | | 0·27 | | 0·3 | | 0·31 | | 2·8 |
| 17 | 51·70 | | 19·1 | | 40·16 | | 6·3 | | 34·07 | | 43·7 | |
| | | 0·20 | | 1·0 | | 0·24 | | 0·4 | | 0·26 | | 3·1 |
| 27 | 51·90 | | 18·1 | | 40·40 | | 5·9 | | 34·33 | | 46·8 | |
| | | 0·17 | | 1·1 | | 0·22 | | 0·3 | | 0·20 | | 3·5 |
| Dec. 7 | 52·07 | | 17·0 | | 40·62 | | 5·6 | | 34·53 | | 50·3 | |
| | | 0·14 | | 1·0 | | 0·17 | | 0·2 | | 0·14 | | 3·6 |
| 17 | 52·21 | | 16·0 | | 40·79 | | 5·4 | | 34·67 | | 53·9 | |
| | | 0·09 | | 1·0 | | 0·13 | | 0·2 | | 0·07 | | 3·6 |
| 27 | 52·30 | | 15·0 | | 40·92 | | 5·2 | | 34·74 | | 57·5 | |
| | | 0·05 | | 1·0 | | 0·09 | | 0·0 | | 0·00 | | 3·5 |
| 37 | 52·35 | | 14·0 | | 41·01 | | 5·2 | | 34·74 | | 61·0 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | 51 (Hev.) Cephei. | | | | α Canis Majoris. (*Sirius*) | | | | ε Canis Majoris. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m 6 25 | | ° ′ 87 15 | | h m 6 38 | | ° ′ 16 30 | | h m 6 52 | | ° ′ 28 45 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 96·84 | | 29·5 | | 21·52 | | 35·7 | | 34·42 | | 61·8 | |
| | | 0·10 | | 3·2 | | 0·05 | | 2·3 | | 0·06 | | 2·3 |
| 11 | 96·94 | | 32·7 | | 21·57 | | 38·0 | | 34·48 | | 64·7 | |
| | | 0·82 | | 3·0 | | 0·01 | | 2·2 | | 0·00 | | 2·3 |
| 21 | 96·12 | | 35·7 | | 21·58 | | 40·2 | | 34·48 | | 67·5 | |
| | | 1·68 | | 2·8 | | 0·04 | | 2·0 | | 0·05 | | 2·3 |
| 31 | 94·44 | | 38·5 | | 21·54 | | 42·2 | | 34·43 | | 70·0 | |
| | | 2·48 | | 2·6 | | 0·09 | | 1·7 | | 0·10 | | 2·2 |
| Feb. 10 | 91·96 | | 41·1 | | 21·45 | | 43·9 | | 34·33 | | 72·2 | |
| | | 3·18 | | 2·1 | | 0·13 | | 1·3 | | 0·14 | | 1·9 |
| 20 | 88·78 | | 43·2 | | 21·32 | | 45·2 | | 34·19 | | 74·0 | |
| | | 3·72 | | 1·6 | | 0·16 | | 1·1 | | 0·17 | | 1·5 |
| Mar. 2 | 85·06 | | 44·8 | | 21·16 | | 46·3 | | 34·02 | | 75·5 | |
| | | 4·09 | | 1·0 | | 0·18 | | 0·8 | | 0·20 | | 1·1 |
| 12 | 80·97 | | 45·8 | | 20·98 | | 47·1 | | 33·82 | | 76·6 | |
| | | 4·33 | | 0·5 | | 0·19 | | 0·4 | | 0·22 | | 0·4 |
| 22 | 76·64 | | 46·3 | | 20·79 | | 47·5 | | 33·60 | | 77·2 | |
| | | 4·34 | | 0·1 | | 0·20 | | 0·1 | | 0·22 | | 0·2 |
| Apr. 1 | 72·30 | | 46·2 | | 20·59 | | 47·6 | | 33·38 | | 77·5 | |
| | | 4·21 | | 0·8 | | 0·19 | | 0·2 | | 0·22 | | 0·2 |
| 11 | 68·09 | | 45·4 | | 20·40 | | 47·4 | | 33·16 | | 77·3 | |
| | | 3·93 | | 1·2 | | 0·17 | | 0·5 | | 0·20 | | 0·4 |
| 21 | 64·16 | | 44·2 | | 20·23 | | 46·9 | | 32·96 | | 76·7 | |
| | | 3·44 | | 1·8 | | 0·15 | | 0·8 | | 0·18 | | 0·7 |
| May 1 | 60·72 | | 42·4 | | 20·08 | | 46·1 | | 32·78 | | 75·8 | |
| | | 2·92 | | 2·3 | | 0·12 | | 1·1 | | 0·16 | | 1·2 |
| 11 | 57·80 | | 40·1 | | 19·96 | | 45·0 | | 32·62 | | 74·5 | |
| | | 2·23 | | 2·6 | | 0·09 | | 1·4 | | 0·12 | | 1·6 |
| 21 | 55·57 | | 37·5 | | 19·87 | | 43·6 | | 32·50 | | 72·9 | |
| | | 1·49 | | 2·8 | | 0·04 | | 1·5 | | 0·07 | | 1·9 |
| 31 | 54·08 | | 34·7 | | 19·83 | | 42·1 | | 32·43 | | 71·0 | |
| | | 0·76 | | 3·1 | | 0·01 | | 1·8 | | 0·04 | | 2·1 |
| June 10 | 53·32 | | 31·6 | | 19·82 | | 40·3 | | 32·39 | | 68·9 | |
| | | 0·05 | | 3·1 | | 0·03 | | 1·9 | | 0·00 | | 2·4 |
| 20 | 53·37 | | 28·5 | | 19·85 | | 38·4 | | 32·39 | | 66·5 | |
| | | 0·96 | | 3·5 | | 0·07 | | 1·9 | | 0·04 | | 2·4 |
| 30 | *54·33 | | 25·0 | | 19·92 | | 36·5 | | 32·43 | | 64·1 | |
| | | 1·68 | | 3·0 | | 0·11 | | 2·2 | | 0·09 | | 2·3 |
| July 10 | 56·01 | | 22·0 | | *20·03 | | 34·3 | | *32·52 | | 61·3 | |
| | | 2·39 | | 3·0 | | 0·15 | | 2·0 | | 0·13 | | 2·3 |
| 20 | 58·40 | | 19·0 | | 20·18 | | 32·3 | | 32·65 | | 58·8 | |
| | | 3·06 | | 2·7 | | 0·17 | | 1·9 | | 0·16 | | 2·3 |
| 30 | 61·46 | | 16·3 | | 20·35 | | 30·4 | | 32·81 | | 56·5 | |
| | | 3·64 | | 2·4 | | 0·20 | | 1·7 | | 0·19 | | 2·2 |
| Aug. 9 | 65·10 | | 13·9 | | 20·55 | | 28·7 | | 33·00 | | 54·3 | |
| | | 4·14 | | 2·1 | | 0·22 | | 1·4 | | 0·22 | | 1·9 |
| 19 | 69·24 | | 11·8 | | 20·77 | | 27·3 | | 33·22 | | 52·4 | |
| | | 4·61 | | 1·7 | | 0·25 | | 1·2 | | 0·24 | | 1·4 |
| 29 | 73·85 | | 10·1 | | 21·02 | | 26·1 | | 33·46 | | 50·8 | |
| | | 4·95 | | 1·4 | | 0·26 | | 0·8 | | 0·27 | | 1·2 |
| Sept. 8 | 78·80 | | 8·7 | | 21·28 | | 25·3 | | 33·73 | | 49·6 | |
| | | 5·15 | | 0·8 | | 0·27 | | 0·4 | | 0·29 | | 0·8 |
| 18 | 83·95 | | 7·9 | | 21·55 | | 24·9 | | 34·02 | | 49·0 | |
| | | 5·31 | | 0·5 | | 0·28 | | 0·1 | | 0·30 | | 0·2 |
| 28 | 89·26 | | 7·4 | | 21·83 | | 25·0 | | 34·32 | | 48·8 | |
| | | 5·35 | | 0·0 | | 0·29 | | 0·5 | | 0·30 | | 0·3 |
| Oct. 8 | 94·61 | | 7·4 | | 22·12 | | 25·5 | | 34·62 | | 49·1 | |
| | | 5·24 | | 0·4 | | 0·29 | | 0·9 | | 0·31 | | 0·7 |
| 18 | 99·85 | | 7·8 | | 22·41 | | 26·4 | | 34·93 | | 50·0 | |
| | | 5·12 | | 1·0 | | 0·28 | | 1·3 | | 0·31 | | 1·4 |
| 28 | 104·97 | | 8·8 | | 22·69 | | 27·7 | | 35·24 | | 51·4 | |
| | | 4·76 | | 1·5 | | 0·27 | | 1·7 | | 0·29 | | 1·7 |
| Nov. 7 | 109·73 | | 10·3 | | 22·96 | | 29·4 | | 35·53 | | 53·3 | |
| | | 4·32 | | 1·9 | | 0·26 | | 2·0 | | 0·27 | | 2·2 |
| 17 | 114·05 | | 12·2 | | 23·22 | | 31·4 | | 35·80 | | 55·5 | |
| | | 3·85 | | 2·3 | | 0·23 | | 2·3 | | 0·25 | | 2·6 |
| 27 | 117·90 | | 14·5 | | 23·45 | | 33·7 | | 36·05 | | 58·1 | |
| | | 3·00 | | 2·7 | | 0·20 | | 2·4 | | 0·22 | | 2·9 |
| Dec. 7 | 120·90 | | 17·2 | | 23·65 | | 36·1 | | 36·27 | | 60·9 | |
| | | 2·33 | | 2·8 | | 0·17 | | 2·5 | | 0·18 | | 3·0 |
| 17 | 123·23 | | 20·0 | | 23·82 | | 38·6 | | 36·45 | | 63·9 | |
| | | 1·45 | | 3·1 | | 0·12 | | 2·5 | | 0·13 | | 3·4 |
| 27 | 124·68 | | 23·1 | | 23·94 | | 41·1 | | 36·58 | | 66·9 | |
| | | 0·56 | | 3·2 | | 0·08 | | 2·5 | | 0·09 | | 3·2 |
| 37 | 125·24 | | 26·3 | | 24·02 | | 43·6 | | 36·67 | | 69·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | δ Geminorum. | | | | α² Geminorum. (*Castor*) | | | | α Canis Minoris. (*Procyon*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 7 10 | | ° ′ 22 15 | | h m 7 24 | | ° ′ 32 13 | | h m 7 31 | | ° ′ 5 36 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| an. 1 | 54·27 | 0·12 | 34·7 | 0·2 | 44·95 | 0·14 | 10·2 | 0·4 | 13·43 | 0·12 | 54·9 | 1·3 |
| 11 | 54·39 | 0·06 | 34·5 | 0·0 | 45·09 | 0·08 | 10·6 | 0·6 | 13·55 | 0·08 | 53·6 | 1·2 |
| 21 | 54·45 | 0·01 | 34·5 | 0·1 | 45·17 | 0·03 | 11·2 | 0·6 | 13·63 | 0·02 | 52·4 | 0·9 |
| 31 | 54·46 | | 34·6 | | 45·20 | | 11·8 | | 13·65 | | 51·5 | |
| | | 0·04 | | 0·1 | | 0·03 | | 0·7 | | 0·02 | | 0·8 |
| eb. 10 | 54·42 | 0·08 | 34·7 | 0·3 | 45·17 | 0·08 | 12·5 | 0·7 | 13·63 | 0·07 | 50·7 | 0·6 |
| 20 | 54·34 | 0·13 | 35·0 | 0·2 | 45·09 | 0·13 | 13·2 | 0·7 | 13·56 | 0·11 | 50·1 | 0·4 |
| ar. 2 | 54·21 | 0·16 | 35·2 | 0·3 | 44·96 | 0·16 | 13·9 | 0·7 | 13·45 | 0·14 | 49·7 | 0·3 |
| 12 | 54·05 | | 35·5 | | 44·80 | | 14·6 | | 13·31 | | 49·4 | |
| | | 0·17 | | 0·2 | | 0·19 | | 0·5 | | 0·16 | | 0·2 |
| 22 | 53·88 | 0·19 | 35·7 | 0·2 | 44·61 | 0·20 | 15·1 | 0·4 | 13·15 | 0·17 | 49·2 | 0·0 |
| pr. 1 | 53·69 | 0·18 | 35·9 | 0·2 | 44·41 | 0·21 | 15·5 | 0·2 | 12·98 | 0·17 | 49·2 | 0·1 |
| 11 | 53·51 | 0·17 | 36·1 | 0·0 | 44·20 | 0·19 | 15·7 | 0·1 | 12·81 | 0·16 | 49·3 | 0·3 |
| 21 | 53·34 | | 36·1 | | 44·01 | | 15·6 | | 12·65 | | 49·6 | |
| | | 0·15 | | 0·1 | | 0·17 | | 0·0 | | 0·15 | | 0·3 |
| ay 1 | 53·19 | 0·13 | 36·2 | 0·1 | 43·84 | 0·14 | 15·6 | 0·2 | 12·50 | 0·13 | 49·9 | 0·4 |
| 11 | 53·06 | 0·09 | 36·1 | 0·1 | 43·70 | 0·11 | 15·4 | 0·4 | 12·37 | 0·09 | 50·3 | 0·4 |
| 21 | 52·97 | 0·04 | 36·0 | 0·1 | 43·59 | 0·07 | 15·0 | 0·5 | 12·28 | 0·07 | 50·7 | 0·6 |
| 31 | 52·93 | | 35·9 | | 43·52 | | 14·5 | | 12·21 | | 51·3 | |
| | | 0·01 | | 0·1 | | 0·03 | | 0·6 | | 0·03 | | 0·6 |
| ne 10 | 52·92 | 0·02 | 35·8 | 0·1 | 43·49 | 0·02 | 13·9 | 0·7 | 12·18 | 0·01 | 51·9 | 0·7 |
| 20 | 52·94 | 0·07 | 35·7 | 0·2 | 43·51 | 0·05 | 13·2 | 0·8 | 12·19 | 0·04 | 52·6 | 0·7 |
| 30 | 53·01 | 0·12 | 35·5 | 0·1 | 43·56 | 0·10 | 12·4 | 0·7 | 12·23 | 0·07 | 53·3 | 0·8 |
| ly 10 | *53·13 | | 35·4 | | 43·66 | | 11·7 | | 12·30 | | 54·1 | |
| | | 0·14 | | 0·2 | * | 0·16 | | 0·9 | * | 0·11 | | 0·8 |
| 20 | 53·27 | 0·18 | 35·2 | 0·2 | 43·82 | 0·18 | 10·8 | 0·8 | 12·41 | 0·14 | 54·9 | 0·6 |
| 30 | 53·45 | 0·20 | 35·0 | 0·2 | 44·00 | 0·20 | 10·0 | 0·8 | 12·55 | 0·17 | 55·5 | 0·6 |
| ug. 9 | 53·65 | 0·23 | 34·8 | 0·3 | 44·20 | 0·23 | 9·2 | 0·9 | 12·72 | 0·19 | 56·1 | 0·4 |
| 19 | 53·88 | | 34·5 | | 44·43 | | 8·3 | | 12·91 | | 56·5 | |
| | | 0·25 | | 0·3 | | 0·26 | | 0·8 | | 0·21 | | 0·3 |
| 29 | 54·13 | 0·27 | 34·2 | 0·4 | 44·69 | 0·29 | 7·5 | 0·9 | 13·12 | 0·24 | 56·8 | 0·1 |
| ept. 8 | 54·40 | 0·28 | 33·8 | 0·5 | 44·98 | 0·30 | 6·6 | 0·8 | 13·36 | 0·25 | 56·9 | 0·2 |
| 18 | 54·68 | 0·30 | 33·3 | 0·6 | 45·28 | 0·32 | 5·8 | 0·9 | 13·61 | 0·27 | 56·7 | 0·3 |
| 28 | 54·98 | | 32·7 | | 45·60 | | 4·9 | | 13·88 | | 56·4 | |
| | | 0·31 | | 0·7 | | 0·33 | | 0·8 | | 0·28 | | 0·7 |
| ct. 8 | 55·29 | 0·32 | 32·0 | 0·7 | 45·93 | 0·35 | 4·1 | 0·8 | 14·16 | 0·29 | 55·7 | 0·8 |
| 18 | 55·61 | 0·32 | 31·3 | 0·7 | 46·28 | 0·34 | 3·3 | 0·7 | 14·45 | 0·29 | 54·9 | 1·1 |
| 28 | 55·93 | 0·31 | 30·6 | 0·8 | 46·62 | 0·35 | 2·6 | 0·7 | 14·74 | 0·30 | 53·8 | 1·3 |
| ov. 7 | 56·24 | | 29·8 | | 46·97 | | 1·9 | | 15·04 | | 52·5 | |
| | | 0·30 | | 0·8 | | 0·34 | | 0·5 | | 0·29 | | 1·4 |
| 17 | 56·54 | 0·29 | 29·0 | 0·7 | 47·31 | 0·32 | 1·4 | 0·4 | 15·33 | 0·27 | 51·1 | 1·5 |
| 27 | 56·83 | 0·26 | 28·3 | 0·6 | 47·63 | 0·30 | 1·0 | 0·2 | 15·60 | 0·26 | 49·6 | 1·5 |
| ec. 7 | 57·09 | 0·23 | 27·7 | 0·5 | 47·93 | 0·26 | 0·8 | 0·0 | 15·86 | 0·22 | 48·1 | 1·6 |
| 17 | 57·32 | | 27·2 | | 48·19 | | 0·8 | | 16·08 | | 46·5 | |
| | | 0·19 | | 0·4 | | 0·21 | | 0·1 | | 0·19 | | 1·4 |
| 27 | 57·51 | 0·14 | 26·8 | 0·2 | 48·40 | 0·17 | 0·9 | 0·4 | 16·27 | 0·14 | 45·1 | 1·4 |
| 37 | 57·65 | | 26·6 | | 48·57 | | 1·3 | | 16·41 | | 43·7 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | β Geminorum. (*Pollux*) | | | | 15 Argus. | | | | ε Hydræ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 7 35 | | ° ′ 28 23 | | h m 8 0 | | ° ′ 23 51 | | h m 8 38 | | ° ′ 6 58 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 52·09 | 0·15 | 31·7 | 0·1 | 58·95 | 0·14 | 46·8 | 2·9 | 36·15 | 0·19 | 50·8 | 1·4 |
| 11 | 52·24 | 0·09 | 31·8 | 0·3 | 59·09 | 0·09 | 49·7 | 2·8 | 36·34 | 0·14 | 49·4 | 1·2 |
| 21 | 52·33 | 0·04 | 32·1 | 0·4 | 59·18 | 0·03 | 52·5 | 2·6 | 36·48 | 0·09 | 48·2 | 1·0 |
| 31 | 52·37 | | 32·5 | | 59·21 | | 55·1 | | 36·57 | | 47·2 | |
| | | 0·02 | | 0·6 | | 0·03 | | 2·4 | | 0·04 | | 0·8 |
| Feb. 10 | 52·35 | 0·07 | 33·1 | 0·5 | 59·18 | 0·06 | 57·5 | 2·1 | 36·61 | 0·01 | 46·4 | 0·6 |
| 20 | 52·28 | 0·11 | 33·6 | 0·6 | 59·12 | 0·11 | 59·6 | 1·7 | 36·60 | 0·05 | 45·8 | 0·2 |
| Mar. 2 | 52·17 | 0·15 | 34·2 | 0·6 | 59·01 | 0·15 | 61·3 | 1·4 | 36·55 | 0·09 | 45·5 | 0·2 |
| 12 | 52·02 | | 34·8 | | 58·86 | | 62·7 | | 36·46 | | 45·3 | |
| | | 0·18 | | 0·5 | | 0·17 | | 1·1 | | 0·12 | | 0·1 |
| 22 | 51·84 | 0·19 | 35·3 | 0·4 | 58·69 | 0·19 | 63·8 | 0·7 | 36·34 | 0·14 | 45·2 | 0·1 |
| Apr. 1 | 51·65 | 0·19 | 35·7 | 0·3 | 58·50 | 0·19 | 64·5 | 0·3 | 36·20 | 0·15 | 45·3 | 0·2 |
| 11 | 51·46 | 0·19 | 36·0 | 0·1 | 58·31 | 0·19 | 64·8 | 0·0 | 36·05 | 0·16 | 45·5 | 0·3 |
| 21 | 51·27 | | 36·1 | | 58·12 | | 64·8 | | 35·89 | | 45·8 | |
| | | 0·17 | | 0·0 | | 0·18 | | 0·4 | | 0·15 | | 0·4 |
| May 1 | 51·10 | 0·14 | 36·1 | 0·1 | 57·94 | 0·16 | 64·4 | 0·7 | 35·74 | 0·14 | 46·2 | 0·4 |
| 11 | 50·96 | 0·11 | 36·0 | 0·2 | 57·78 | 0·14 | 63·7 | 1·1 | 35·60 | 0·12 | 46·6 | 0·4 |
| 21 | 50·85 | 0·08 | 35·8 | 0·3 | 57·64 | 0·12 | 62·6 | 1·3 | 35·48 | 0·10 | 47·0 | 0·5 |
| 31 | 50·77 | | 35·5 | | 57·52 | | 61·3 | | 35·38 | | 47·5 | |
| | | 0·03 | | 0·4 | | 0·08 | | 1·6 | | 0·07 | | 0·6 |
| June 10 | 50·74 | 0·00 | 35·1 | 0·5 | 57·44 | 0·04 | 59·7 | 1·8 | 35·31 | 0·04 | 48·1 | 0·3 |
| 20 | 50·74 | 0·04 | 34·6 | 0·5 | 57·40 | 0·01 | 57·9 | 2·0 | 35·27 | 0·01 | 48·6 | 0·6 |
| 30 | 50·78 | 0·09 | 34·1 | 0·6 | 57·39 | 0·02 | 55·9 | 2·0 | 35·26 | 0·01 | 49·2 | 0·5 |
| July 10 | 50·87 | | 33·5 | | 57·41 | | 53·9 | | 35·27 | | 49·7 | |
| | * | 0·13 | | 0·6 | | 0·05 | | 2·2 | | 0·05 | | 0·5 |
| 20 | 51·00 | 0·16 | 32·9 | 0·6 | 57·46 | 0·11 | 51·7 | 2·3 | 35·32 | 0·07 | 50·2 | 0·5 |
| 30 | 51·16 | 0·18 | 32·3 | 0·7 | *57·57 | 0·12 | 49·4 | 2·0 | 35·39 | 0·12 | 50·7 | 0·4 |
| Aug. 9 | 51·34 | 0·22 | 31·6 | 0·7 | 57·69 | 0·16 | 47·4 | 1·9 | *35·51 | 0·13 | 51·1 | 0·2 |
| 19 | 51·56 | | 30·9 | | 57·85 | | 45·5 | | 35·64 | | 51·3 | |
| | | 0·24 | | 0·8 | | 0·19 | | 1·5 | | 0·16 | | 0·1 |
| 29 | 51·80 | 0·27 | 30·1 | 0·8 | 58·04 | 0·21 | 44·0 | 1·3 | 35·80 | 0·19 | 51·4 | 0·1 |
| Sept. 8 | 52·07 | 0·28 | 29·3 | 0·8 | 58·25 | 0·24 | 42·7 | 0·9 | 35·99 | 0·21 | 51·3 | 0·4 |
| 18 | 52·35 | 0·30 | 28·5 | 0·9 | 58·49 | 0·27 | 41·8 | 0·4 | 36·20 | 0·23 | 50·9 | 0·6 |
| 28 | 52·65 | | 27·6 | | 58·76 | | 41·4 | | 36·43 | | 50·3 | |
| | | 0·32 | | 0·8 | | 0·28 | | 0·1 | | 0·26 | | 0·8 |
| Oct. 8 | 52·97 | 0·33 | 26·8 | 1·0 | 59·04 | 0·30 | 41·5 | 0·5 | 36·69 | 0·28 | 49·5 | 1·0 |
| 18 | 53·30 | 0·33 | 25·8 | 0·9 | 59·34 | 0·31 | 42·0 | 1·0 | 36·97 | 0·29 | 48·5 | 1·2 |
| 28 | 53·63 | 0·34 | 24·9 | 0·8 | 59·65 | 0·31 | 43·0 | 1·5 | 37·26 | 0·31 | 47·3 | 1·4 |
| Nov. 7 | 53·97 | | 24·1 | | 59·96 | | 44·5 | | 37·57 | | 45·9 | |
| | | 0·33 | | 0·7 | | 0·31 | | 1·9 | | 0·31 | | 1·6 |
| 17 | 54·30 | 0·31 | 23·4 | 0·7 | 60·27 | 0·30 | 46·4 | 2·3 | 37·88 | 0·30 | 44·3 | 1·7 |
| 27 | 54·61 | 0·29 | 22·7 | 0·4 | 60·57 | 0·27 | 48·7 | 2·6 | 38·18 | 0·30 | 42·6 | 1·6 |
| Dec. 7 | 54·90 | 0·26 | 22·3 | 0·4 | 60·84 | 0·24 | 51·3 | 2·7 | 38·48 | 0·27 | 41·0 | 1·7 |
| 17 | 55·16 | | 21·9 | | 61·08 | | 54·0 | | 38·75 | | 39·3 | |
| | | 0·23 | | 0·1 | | 0·21 | | 3·0 | | 0·25 | | 1·6 |
| 27 | 55·39 | 0·17 | 21·8 | 0·1 | 61·29 | 0·16 | 57·0 | 2·8 | 39·00 | 0·20 | 37·7 | 1·4 |
| 37 | 55·56 | | 21·9 | | 61·45 | | 59·8 | | 39·20 | | 36·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ι Ursæ Majoris. | | | | ι Argus. | | | | α Hydræ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m<br>8 48 | | ° ′<br>48 38 | | h m<br>9 12 | | ° ′<br>58 37 | | h m<br>9 19 | | ° ′<br>7 59 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 36·82 | | 29·0 | | 59·54 | | 33·0 | | 60·25 | | 31·4 | |
| | | 0·27 | | 1·0 | | 0·26 | | 3·7 | | 0·22 | | 2·3 |
| 11 | 37·09 | | 30·0 | | 59·80 | | 36·7 | | 60·47 | | 33·7 | |
| | | 0·21 | | 1·2 | | 0·19 | | 3·8 | | 0·17 | | 2·1 |
| 21 | 37·30 | | 31·2 | | 59·99 | | 40·5 | | 60·64 | | 35·8 | |
| | | 0·14 | | 1·5 | | 0·10 | | 3·8 | | 0·13 | | 2·0 |
| 31 | 37·44 | | 32·7 | | 60·09 | | 44·3 | | 60·77 | | 37·8 | |
| | | 0·07 | | 1·7 | | 0·02 | | 3·7 | | 0·07 | | 1·7 |
| Feb. 10 | 37·51 | | 34·4 | | 60·11 | | 48·0 | | 60·84 | | 39·5 | |
| | | 0·01 | | 1·8 | | 0·06 | | 3·6 | | 0·03 | | 1·5 |
| 20 | 37·50 | | 36·2 | | 60·05 | | 51·6 | | 60·87 | | 41·0 | |
| | | 0·08 | | 1·7 | | 0·13 | | 3·4 | | 0·02 | | 1·3 |
| Mar. 2 | 37·42 | | 37·9 | | 59·92 | | 55·0 | | 60·85 | | 42·3 | |
| | | 0·14 | | 1·7 | | 0·20 | | 3·0 | | 0·06 | | 1·0 |
| 12 | 37·28 | | 39·6 | | 59·72 | | 58·0 | | 60·79 | | 43·3 | |
| | | 0·18 | | 1·6 | | 0·25 | | 2·7 | | 0·09 | | 0·8 |
| 22 | 37·10 | | 41·2 | | 59·47 | | 60·7 | | 60·70 | | 44·1 | |
| | | 0·22 | | 1·3 | | 0·29 | | 2·2 | | 0·12 | | 0·5 |
| Apr. 1 | 36·88 | | 42·5 | | 59·18 | | 62·9 | | 60·58 | | 44·6 | |
| | | 0·25 | | 1·0 | | 0·33 | | 1·8 | | 0·14 | | 0·3 |
| 11 | 36·63 | | 43·5 | | 58·85 | | 64·7 | | 60·44 | | 44·9 | |
| | | 0·25 | | 0·8 | | 0·35 | | 1·3 | | 0·14 | | 0·0 |
| 21 | 36·38 | | 44·3 | | 58·50 | | 66·0 | | 60·30 | | 44·9 | |
| | | 0·25 | | 0·4 | | 0·36 | | 0·8 | | 0·15 | | 0·2 |
| May 1 | 36·13 | | 44·7 | | 58·14 | | 66·8 | | 60·15 | | 44·7 | |
| | | 0·24 | | 0·0 | | 0·35 | | 0·2 | | 0·14 | | 0·3 |
| 11 | 35·89 | | 44·7 | | 57·79 | | 67·0 | | 60·01 | | 44·4 | |
| | | 0·22 | | 0·3 | | 0·35 | | 0·2 | | 0·13 | | 0·6 |
| 21 | 35·67 | | 44·4 | | 57·44 | | 66·8 | | 59·88 | | 43·8 | |
| | | 0·18 | | 0·6 | | 0·32 | | 0·8 | | 0·11 | | 0·7 |
| 31 | 35·49 | | 43·8 | | 57·12 | | 66·0 | | 59·77 | | 43·1 | |
| | | 0·14 | | 0·9 | | 0·30 | | 1·2 | | 0·10 | | 0·8 |
| June 10 | 35·35 | | 42·9 | | 56·82 | | 64·8 | | 59·67 | | 42·3 | |
| | | 0·10 | | 1·2 | | 0·26 | | 1·6 | | 0·07 | | 1·0 |
| 20 | 35·25 | | 41·7 | | 56·56 | | 63·2 | | 59·60 | | 41·3 | |
| | | 0·05 | | 1·5 | | 0·22 | | 2·1 | | 0·05 | | 1·1 |
| 30 | 35·20 | | 40·2 | | 56·34 | | 61·1 | | 59·55 | | 40·2 | |
| | | 0·01 | | 1·6 | | 0·17 | | 2·4 | | 0·03 | | 1·1 |
| July 10 | 35·19 | | 38·6 | | 56·17 | | 58·7 | | 59·52 | | 39·1 | |
| | | 0·03 | | 1·8 | | 0·11 | | 2·7 | | 0·00 | | 1·2 |
| 20 | 35·22 | | 36·8 | | 56·06 | | 56·0 | | 59·52 | | 37·9 | |
| | | 0·09 | | 2·0 | | 0·06 | | 2·9 | | 0·03 | | 1·2 |
| 30 | 35·31 | | 34·8 | | 56·00 | | 53·1 | | 59·55 | | 36·7 | |
| | | 0·14 | | 2·2 | | 0·01 | | 2·9 | | 0·06 | | 1·1 |
| Aug. 9 | *35·45 | | 32·6 | | 56·01 | | 50·2 | | 59·61 | | 35·6 | |
| | | 0·17 | | 2·1 | | 0·08 | | 3·3 | | 0·09 | | 1·1 |
| 19 | 35·62 | | 30·5 | | *56·09 | | 46·9 | | *59·70 | | 34·5 | |
| | | 0·22 | | 2·1 | | 0·14 | | 2·8 | | 0·12 | | 0·8 |
| 29 | 35·84 | | 28·4 | | 56·23 | | 44·1 | | 59·82 | | 33·7 | |
| | | 0·26 | | 2·1 | | 0·21 | | 2·6 | | 0·14 | | 0·6 |
| Sept. 8 | 36·10 | | 26·3 | | 56·44 | | 41·5 | | 59·96 | | 33·1 | |
| | | 0·29 | | 2·1 | | 0·28 | | 2·3 | | 0·17 | | 0·4 |
| 18 | 36·39 | | 24·2 | | 56·72 | | 39·2 | | 60·13 | | 32·7 | |
| | | 0·33 | | 2·0 | | 0·33 | | 1·9 | | 0·21 | | 0·0 |
| 28 | 36·72 | | 22·2 | | 57·05 | | 37·3 | | 60·34 | | 32·7 | |
| | | 0·36 | | 1·9 | | 0·39 | | 1·3 | | 0·23 | | 0·3 |
| Oct. 8 | 37·08 | | 20·3 | | 57·44 | | 36·0 | | 60·57 | | 33·0 | |
| | | 0·39 | | 1·8 | | 0·44 | | 0·8 | | 0·26 | | 0·7 |
| 18 | 37·47 | | 18·5 | | 57·88 | | 35·2 | | 60·83 | | 33·7 | |
| | | 0·41 | | 1·5 | | 0·47 | | 0·2 | | 0·28 | | 1·0 |
| 28 | 37·88 | | 17·0 | | 58·35 | | 35·0 | | 61·11 | | 34·7 | |
| | | 0·43 | | 1·3 | | 0·49 | | 0·6 | | 0·30 | | 1·3 |
| Nov. 7 | 38·31 | | 15·7 | | 58·84 | | 35·6 | | 61·41 | | 36·0 | |
| | | 0·44 | | 1·0 | | 0·50 | | 1·1 | | 0·31 | | 1·7 |
| 17 | 38·75 | | 14·7 | | 59·34 | | 36·7 | | 61·72 | | 37·7 | |
| | | 0·44 | | 0·6 | | 0·48 | | 1·8 | | 0·31 | | 1·9 |
| 27 | 39·19 | | 14·1 | | 59·82 | | 38·5 | | 62·03 | | 39·6 | |
| | | 0·42 | | 0·3 | | 0·46 | | 2·3 | | 0·30 | | 2·1 |
| Dec. 7 | 39·61 | | 13·8 | | 60·28 | | 40·8 | | 62·33 | | 41·7 | |
| | | 0·40 | | 0·0 | | 0·43 | | 2·8 | | 0·30 | | 2·2 |
| 17 | 40·01 | | 13·8 | | 60·71 | | 43·6 | | 62·63 | | 43·9 | |
| | | 0·35 | | 0·5 | | 0·37 | | 3·2 | | 0·27 | | 2·3 |
| 27 | 40·36 | | 14·3 | | 61·08 | | 46·8 | | 62·90 | | 46·2 | |
| | | 0·31 | | 0·8 | | 0·30 | | 3·5 | | 0·23 | | 2·2 |
| 37 | 40·67 | | 15·1 | | 61·38 | | 50·3 | | 63·13 | | 48·4 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | θ Ursæ Majoris. | | | | ε Leonis. | | | | α Leonis. (*Regulus*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 9 22 | | ° ′ 52 22 | | h m 9 37 | | ° ′ 24 28 | | h m 10 0 | | ° ′ 12 42 | |
| | s | | ″ | | s | | ″ | | s | | ″ | |
| Jan. 1 | 30·13 | | 28·0 | | 4·73 | | 50·5 | | 8·72 | | 67·5 | |
| | | 0·33 | | 0·8 | | 0·26 | | 0·6 | | 0·26 | | 1·4 |
| 11 | 30·46 | | 28·8 | | 4·99 | | 49·9 | | 8·98 | | 66·1 | |
| | | 0·27 | | 1·3 | | 0·22 | | 0·4 | | 0·22 | | 1·1 |
| 21 | 30·73 | | 30·1 | | 5·21 | | 49·5 | | 9·20 | | 65·0 | |
| | | 0·19 | | 1·6 | | 0·16 | | 0·1 | | 0·17 | | 0·9 |
| 31 | 30·92 | | 31·7 | | 5·37 | | 49·4 | | 9·37 | | 64·1 | |
| | | 0·12 | | 1·8 | | 0·11 | | 0·2 | | 0·12 | | 0·3 |
| Feb. 10 | 31·04 | | 33·5 | | 5·48 | | 49·6 | | 9·49 | | 63·6 | |
| | | 0·04 | | 1·9 | | 0·05 | | 0·5 | | 0·08 | | 0·4 |
| 20 | 31·08 | | 35·4 | | 5·53 | | 50·1 | | 9·57 | | 63·2 | |
| | | 0·04 | | 2·1 | | 0·01 | | 0·6 | | 0·03 | | 0·0 |
| Mar. 2 | 31·04 | | 37·5 | | 5·54 | | 50·7 | | 9·60 | | 63·2 | |
| | | 0·11 | | 1·9 | | 0·05 | | 0·8 | | 0·02 | | 0·1 |
| 12 | 30·93 | | 39·4 | | 5·49 | | 51·5 | | 9·58 | | 63·3 | |
| | | 0·17 | | 1·9 | | 0·08 | | 0·8 | | 0·06 | | 0·2 |
| 22 | 30·76 | | 41·3 | | 5·41 | | 52·3 | | 9·52 | | 63·6 | |
| | | 0·21 | | 1·7 | | 0·12 | | 0·9 | | 0·09 | | 0·4 |
| Apr. 1 | 30·55 | | 43·0 | | 5·29 | | 53·2 | | 9·43 | | 64·0 | |
| | | 0·24 | | 1·4 | | 0·14 | | 0·8 | | 0·11 | | 0·5 |
| 11 | 30·31 | | 44·4 | | 5·15 | | 54·0 | | 9·32 | | 64·5 | |
| | | 0·27 | | 1·1 | | 0·15 | | 0·8 | | 0·13 | | 0·6 |
| 21 | 30·04 | | 45·5 | | 5·00 | | 54·8 | | 9·19 | | 65·1 | |
| | | 0·28 | | 0·7 | | 0·15 | | 0·7 | | 0·13 | | 0·6 |
| May 1 | 29·76 | | 46·2 | | 4·85 | | 55·5 | | 9·06 | | 65·7 | |
| | | 0·27 | | 0·3 | | 0·16 | | 0·6 | | 0·14 | | 0·5 |
| 11 | 29·49 | | 46·5 | | 4·69 | | 56·1 | | 8·92 | | 66·3 | |
| | | 0·25 | | 0·1 | | 0·14 | | 0·4 | | 0·13 | | 0·5 |
| 21 | 29·24 | | 46·4 | | 4·55 | | 56·5 | | 8·79 | | 66·9 | |
| | | 0·22 | | 0·4 | | 0·13 | | 0·3 | | 0·12 | | 0·5 |
| 31 | 29·02 | | 46·0 | | 4·42 | | 56·8 | | 8·67 | | 67·4 | |
| | | 0·19 | | 0·8 | | 0·11 | | 0·1 | | 0·10 | | 0·4 |
| June 10 | 28·83 | | 45·2 | | 4·31 | | 56·9 | | 8·57 | | 67·8 | |
| | | 0·16 | | 1·1 | | 0·09 | | 0·0 | | 0·09 | | 0·4 |
| 20 | 28·67 | | 44·1 | | 4·22 | | 56·9 | | 8·48 | | 68·2 | |
| | | 0·11 | | 1·5 | | 0·06 | | 0·2 | | 0·07 | | 0·3 |
| 30 | 28·56 | | 42·6 | | 4·16 | | 56·7 | | 8·41 | | 68·5 | |
| | | 0·07 | | 1·7 | | 0·03 | | 0·3 | | 0·04 | | 0·2 |
| July 10 | 28·49 | | 40·9 | | 4·13 | | 56·4 | | 8·37 | | 68·7 | |
| | | 0·02 | | 1·9 | | 0·00 | | 0·5 | | 0·02 | | 0·2 |
| 20 | 28·47 | | 39·0 | | 4·13 | | 55·9 | | 8·35 | | 68·9 | |
| | | 0·03 | | 2·1 | | 0·02 | | 0·6 | | 0·00 | | 0·0 |
| 30 | 28·50 | | 36·9 | | 4·15 | | 55·3 | | 8·35 | | 68·9 | |
| | | 0·08 | | 2·3 | | 0·05 | | 0·8 | | 0·03 | | 0·1 |
| Aug. 9 | 28·58 | | 34·6 | | 4·20 | | 54·5 | | 8·38 | | 68·8 | |
| | | 0·13 | | 2·7 | | 0·10 | | 1·0 | | 0·05 | | 0·2 |
| 19 | *28·71 | | 31·9 | | *4·30 | | 53·5 | | 8·43 | | 68·5 | |
| | | 0·18 | | 2·5 | | 0·11 | | 1·1 | | 0·09 | | 0·4 |
| 29 | 28·89 | | 29·4 | | 4·41 | | 52·4 | | *8·52 | | 68·1 | |
| | | 0·22 | | 2·5 | | 0·14 | | 1·2 | | 0·11 | | 0·4 |
| Sept. 8 | 29·11 | | 26·9 | | 4·55 | | 51·2 | | 8·63 | | 67·5 | |
| | | 0·27 | | 2·5 | | 0·18 | | 1·4 | | 0·15 | | 0·5 |
| 18 | 29·38 | | 24·4 | | 4·73 | | 49·8 | | 8·78 | | 66·6 | |
| | | 0·31 | | 2·4 | | 0·21 | | 1·4 | | 0·17 | | 1·0 |
| 28 | 29·69 | | 22·0 | | 4·94 | | 48·4 | | 8·95 | | 65·6 | |
| | | 0·35 | | 2·3 | | 0·24 | | 1·6 | | 0·21 | | 1·2 |
| Oct. 8 | 30·04 | | 19·7 | | 5·18 | | 46·8 | | 9·16 | | 64·4 | |
| | | 0·38 | | 2·2 | | 0·27 | | 1·7 | | 0·24 | | 1·4 |
| 18 | 30·42 | | 17·5 | | 5·45 | | 45·1 | | 9·40 | | 63·0 | |
| | | 0·42 | | 1·9 | | 0·29 | | 1·8 | | 0·27 | | 1·6 |
| 28 | 30·84 | | 15·6 | | 5·74 | | 43·3 | | 9·67 | | 61·4 | |
| | | 0·45 | | 1·7 | | 0·32 | | 1·8 | | 0·29 | | 1·7 |
| Nov. 7 | 31·29 | | 13·9 | | 6·06 | | 41·5 | | 9·96 | | 59·7 | |
| | | 0·46 | | 1·4 | | 0·33 | | 1·7 | | 0·31 | | 1·8 |
| 17 | 31·75 | | 12·5 | | 6·39 | | 39·8 | | 10·27 | | 57·9 | |
| | | 0·47 | | 1·0 | | 0·34 | | 1·6 | | 0·32 | | 1·9 |
| 27 | 32·22 | | 11·5 | | 6·73 | | 38·2 | | 10·59 | | 56·0 | |
| | | 0·46 | | 0·6 | | 0·34 | | 1·5 | | 0·33 | | 1·8 |
| Dec. 7 | 32·68 | | 10·9 | | 7·07 | | 36·7 | | 10·92 | | 54·2 | |
| | | 0·44 | | 0·1 | | 0·33 | | 1·3 | | 0·32 | | 1·8 |
| 17 | 33·12 | | 10·8 | | 7·40 | | 35·4 | | 11·24 | | 52·4 | |
| | | 0·41 | | 0·2 | | 0·31 | | 1·1 | | 0·30 | | 1·6 |
| 27 | 33·53 | | 11·0 | | 7·71 | | 34·3 | | 11·54 | | 50·8 | |
| | | 0·36 | | 0·7 | | 0·28 | | 0·7 | | 0·27 | | 1·3 |
| 37 | 33·89 | | 11·7 | | 7·99 | | 33·6 | | 11·81 | | 49·3 | |

## PARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| η Argus. | | | | α Ursæ Majoris. | | | | δ Leonis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| h m | | ° ′ | | h m | | ° ′ | | h m | | ° ′ | |
| 10 39 | | 58 52 | | 10 54 | | 62 34 | | 11 5 | | 21 21 | |
| s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| 6·49 | | 9·0 | | 8·93 | | 46·8 | | 52·90 | | 63·7 | |
| | 0·41 | | 3·2 | | 0·53 | | 0·4 | | 0·30 | | 1·2 |
| 6·90 | | 12·2 | | 9·46 | | 47·2 | | 53·20 | | 62·5 | |
| | 0·34 | | 3·4 | | 0·47 | | 1·0 | | 0·28 | | 1·0 |
| 7·24 | | 15·6 | | 9·93 | | 48·2 | | 53·48 | | 61·5 | |
| | 0·28 | | 3·6 | | 0·39 | | 1·5 | | 0·24 | | 0·6 |
| 7·52 | | 19·2 | | 10·32 | | 49·7 | | 53·72 | | 60·9 | |
| | 0·20 | | 3·7 | | 0·31 | | 1·9 | | 0·20 | | 0·2 |
| 7·72 | | 22·9 | | 10·63 | | 51·6 | | 53·92 | | 60·7 | |
| | 0·12 | | 3·7 | | 0·22 | | 2·2 | | 0·14 | | 0·1 |
| 7·84 | | 26·6 | | 10·85 | | 53·8 | | 54·06 | | 60·8 | |
| | 0·04 | | 3·6 | | 0·12 | | 2·5 | | 0·10 | | 0·4 |
| 7·88 | | 30·2 | | 10·97 | | 56·3 | | 54·16 | | 61·2 | |
| | 0·02 | | 3·5 | | 0·03 | | 2·6 | | 0·05 | | 0·6 |
| 7·86 | | 33·7 | | 11·00 | | 58·9 | | 54·21 | | 61·8 | |
| | 0·10 | | 3·2 | | 0·07 | | 2·7 | | 0·00 | | 0·9 |
| 7·76 | | 36·9 | | 10·93 | | 61·6 | | 54·21 | | 62·7 | |
| | 0·15 | | 3·0 | | 0·14 | | 2·5 | | 0·03 | | 1·0 |
| 7·61 | | 39·9 | | 10·79 | | 64·1 | | 54·18 | | 63·7 | |
| | 0·20 | | 2·6 | | 0·22 | | 2·4 | | 0·07 | | 1·0 |
| 7·41 | | 42·5 | | 10·57 | | 66·5 | | 54·11 | | 64·7 | |
| | 0·24 | | 2·2 | | 0·27 | | 2·1 | | 0·09 | | 1·1 |
| 7·17 | | 44·7 | | 10·30 | | 68·6 | | 54·02 | | 65·8 | |
| | 0·27 | | 1·8 | | 0·32 | | 1·8 | | 0·11 | | 1·1 |
| 6·90 | | 46·5 | | 9·98 | | 70·4 | | 53·91 | | 66·9 | |
| | 0·29 | | 1·3 | | 0·35 | | 1·3 | | 0·12 | | 1·0 |
| 6·61 | | 47·8 | | 9·63 | | 71·7 | | 53·79 | | 67·9 | |
| | 0·31 | | 0·8 | | 0·36 | | 0·9 | | 0·13 | | 0·9 |
| 6·30 | | 48·6 | | 9·27 | | 72·6 | | 53·66 | | 68·8 | |
| | 0·31 | | 0·3 | | 0·36 | | 0·4 | | 0·12 | | 0·7 |
| 5·99 | | 48·9 | | 8·91 | | 73·0 | | 53·54 | | 69·5 | |
| | 0·31 | | 0·2 | | 0·35 | | 0·1 | | 0·13 | | 0·6 |
| 5·68 | | 48·7 | | 8·56 | | 72·9 | | 53·41 | | 70·1 | |
| | 0·30 | | 0·7 | | 0·33 | | 0·6 | | 0·11 | | 0·4 |
| 5·38 | | 48·0 | | 8·23 | | 72·3 | | 53·30 | | 70·5 | |
| | 0·28 | | 1·1 | | 0·29 | | 1·0 | | 0·11 | | 0·3 |
| 5·10 | | 46·9 | | 7·94 | | 71·3 | | 53·19 | | 70·8 | |
| | 0·26 | | 1·6 | | 0·26 | | 1·4 | | 0·09 | | 0·0 |
| 4·84 | | 45·3 | | 7·68 | | 69·9 | | 53·10 | | 70·8 | |
| | 0·22 | | 2·0 | | 0·22 | | 1·9 | | 0·07 | | 0·1 |
| 4·62 | | 43·3 | | 7·46 | | 68·0 | | 53·03 | | 70·7 | |
| | 0·18 | | 2·3 | | 0·17 | | 2·2 | | 0·06 | | 0·4 |
| 4·44 | | 41·0 | | 7·29 | | 65·8 | | 52·97 | | 70·3 | |
| | 0·13 | | 2·6 | | 0·11 | | 2·5 | | 0·04 | | 0·5 |
| 4·31 | | 38·4 | | 7·18 | | 63·3 | | 52·93 | | 69·8 | |
| | 0·07 | | 2·7 | | 0·06 | | 2·8 | | 0·01 | | 0·8 |
| 4·24 | | 35·7 | | 7·12 | | 60·5 | | 52·92 | | 69·0 | |
| | 0·01 | | 2·8 | | 0·01 | | 3·1 | | 0·01 | | 1·0 |
| 4·23 | | 32·9 | | 7·13 | | 57·4 | | 52·93 | | 68·0 | |
| | 0·07 | | 3·1 | | 0·07 | | 3·4 | | 0·05 | | 1·3 |
| * 4·30 | | 29·8 | | * 7·20 | | 54·0 | | * 52·98 | | 66·7 | |
| | 0·13 | | 2·7 | | 0·14 | | 3·3 | | 0·08 | | 1·4 |
| 4·43 | | 27·1 | | 7·34 | | 50·7 | | 53·06 | | 65·3 | |
| | 0·21 | | 2·4 | | 0·21 | | 3·3 | | 0·12 | | 1·6 |
| 4·64 | | 24·7 | | 7·55 | | 47·4 | | 53·18 | | 63·7 | |
| | 0·28 | | 2·1 | | 0·28 | | 3·2 | | 0·15 | | 1·7 |
| 4·92 | | 22·6 | | 7·83 | | 44·2 | | 53·33 | | 62·0 | |
| | 0·35 | | 1·6 | | 0·34 | | 3·2 | | 0·19 | | 2·0 |
| 5·27 | | 21·0 | | 8·17 | | 41·0 | | 53·52 | | 60·0 | |
| | 0·41 | | 1·1 | | 0·41 | | 2·9 | | 0·23 | | 2·1 |
| 5·68 | | 19·9 | | 8·58 | | 38·1 | | 53·75 | | 57·9 | |
| | 0·46 | | 0·5 | | 0·47 | | 2·7 | | 0·26 | | 2·1 |
| 6·14 | | 19·4 | | 9·05 | | 35·4 | | 54·01 | | 55·8 | |
| | 0·49 | | 0·1 | | 0·51 | | 2·4 | | 0·30 | | 2·2 |
| 6·63 | | 19·5 | | 9·56 | | 33·0 | | 54·31 | | 53·6 | |
| | 0·52 | | 0·8 | | 0·56 | | 2·0 | | 0·32 | | 2·1 |
| 7·15 | | 20·3 | | 10·12 | | 31·0 | | 54·63 | | 51·5 | |
| | 0·52 | | 1·3 | | 0·58 | | 1·5 | | 0·33 | | 2·1 |
| 7·67 | | 21·6 | | 10·70 | | 29·5 | | 54·96 | | 49·4 | |
| | 0·51 | | 1·9 | | 0·59 | | 0·9 | | 0·34 | | 1·9 |
| 8·18 | | 23·5 | | 11·29 | | 28·6 | | 55·30 | | 47·5 | |
| | 0·48 | | 2·5 | | 0·57 | | 0·4 | | 0·33 | | 1·7 |
| 8·66 | | 26·0 | | 11·86 | | 28·2 | | 55·63 | | 45·8 | |
| | 0·44 | | 2·9 | | 0·55 | | 0·1 | | 0·32 | | 1·4 |
| 9·10 | | 28·9 | | 12·41 | | 28·3 | | 55·95 | | 44·4 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | δ Hydræ et Crateris. | | | | β Leonis. | | | | γ Ursæ Majo | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. |
| | h m 11 11 | | ° ′ 13 56 | | h m 11 41 | | ° ′ 15 25 | | h m 11 45 | | ° 54 |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ |
| Jan. 1 | 37·30 | | 31·6 | | 10·29 | | 64·5 | | 40·20 | | 59 |
| | | 0·30 | | 2·4 | | 0·31 | | 1·6 | | 0·46 | |
| 11 | 37·60 | | 34·0 | | 10·60 | | 62·9 | | 40·66 | | 59 |
| | | 0·26 | | 2·4 | | 0·29 | | 1·4 | | 0·44 | |
| 21 | 37·86 | | 36·4 | | 10·89 | | 61·5 | | 41·10 | | 59 |
| | | 0·23 | | 2·2 | | 0·26 | | 1·0 | | 0·38 | |
| 31 | 38·09 | | 38·6 | | 11·15 | | 60·5 | | 41·48 | | 59 |
| | | 0·18 | | 2·2 | | 0·22 | | 0·7 | | 0·33 | |
| Feb. 10 | 38·27 | | 40·8 | | 11·37 | | 59·8 | | 41·81 | | 61 |
| | | 0·14 | | 1·9 | | 0·17 | | 0·3 | | 0·26 | |
| 20 | 38·41 | | 42·7 | | 11·54 | | 59·5 | | 42·07 | | 62 |
| | | 0·10 | | 1·8 | | 0·13 | | 0·0 | | 0·19 | |
| Mar. 2 | 38·51 | | 44·5 | | 11·67 | | 59·5 | | 42·26 | | 64 |
| | | 0·05 | | 1·5 | | 0·08 | | 0·3 | | 0·11 | |
| 12 | 38·56 | | 46·0 | | 11·75 | | 59·8 | | 42·37 | | 67 |
| | | 0·01 | | 1·2 | | 0·04 | | 0·5 | | 0·05 | |
| 22 | 38·57 | | 47·2 | | 11·79 | | 60·3 | | 42·42 | | 69 |
| | | 0·02 | | 1·0 | | 0·01 | | 0·7 | | 0·03 | |
| Apr. 1 | 38·55 | | 48·2 | | 11·80 | | 61·0 | | 42·39 | | 72 |
| | | 0·05 | | 0·8 | | 0·03 | | 0·9 | | 0·09 | |
| 11 | 38·50 | | 49·0 | | 11·77 | | 61·9 | | 42·30 | | 74 |
| | | 0·08 | | 0·5 | | 0·06 | | 0·9 | | 0·14 | |
| 21 | 38·42 | | 49·5 | | 11·71 | | 62·8 | | 42·16 | | 77 |
| | | 0·09 | | 0·2 | | 0·08 | | 1·0 | | 0·19 | |
| May 1 | 38·33 | | 49·7 | | 11·63 | | 63·8 | | 41·97 | | 79 |
| | | 0·10 | | 0·1 | | 0·09 | | 1·0 | | 0·22 | |
| 11 | 38·23 | | 49·8 | | 11·54 | | 64·8 | | 41·75 | | 81 |
| | | 0·12 | | 0·2 | | 0·11 | | 0·9 | | 0·24 | |
| 21 | 38·11 | | 49·6 | | 11·43 | | 65·7 | | 41·51 | | 82 |
| | | 0·11 | | 0·3 | | 0·11 | | 0·9 | | 0·25 | |
| 31 | 38·00 | | 49·3 | | 11·32 | | 66·6 | | 41·26 | | 83 |
| | | 0·11 | | 0·5 | | 0·12 | | 0·8 | | 0·27 | |
| June 10 | 37·89 | | 48·8 | | 11·20 | | 67·4 | | 40·99 | | 84 |
| | | 0·11 | | 0·7 | | 0·11 | | 0·6 | | 0·25 | |
| 20 | 37·78 | | 48·1 | | 11·09 | | 68·0 | | 40·74 | | 84 |
| | | 0·11 | | 0·9 | | 0·11 | | 0·5 | | 0·26 | |
| 30 | 37·67 | | 47·2 | | 10·98 | | 68·5 | | 40·48 | | 84 |
| | | 0·09 | | 1·0 | | 0·10 | | 0·3 | | 0·23 | |
| July 10 | 37·58 | | 46·2 | | 10·88 | | 68·8 | | 40·25 | | 83 |
| | | 0·08 | | 1·0 | | 0·09 | | 0·2 | | 0·21 | |
| 20 | 37·50 | | 45·2 | | 10·79 | | 69·0 | | 40·04 | | 82 |
| | | 0·06 | | 1·1 | | 0·08 | | 0·0 | | 0·19 | |
| 30 | 37·44 | | 44·1 | | 10·71 | | 69·0 | | 39·85 | | 80 |
| | | 0·05 | | 1·2 | | 0·07 | | 0·2 | | 0·16 | |
| Aug. 9 | 37·39 | | 42·9 | | 10·64 | | 68·8 | | 39·69 | | 78 |
| | | 0·02 | | 1·1 | | 0·04 | | 0·4 | | 0·12 | |
| 19 | 37·37 | | 41·8 | | 10·60 | | 68·4 | | 39·57 | | 76 |
| | | 0·00 | | 1·0 | | 0·02 | | 0·6 | | 0·07 | |
| 29 | 37·37 | | 40·8 | | 10·58 | | 67·8 | | 39·50 | | 74 |
| | | 0·03 | | 0·9 | | 0·00 | | 0·9 | | 0·03 | |
| Sept. 8 | 37·40 | | 39·9 | | 10·58 | | 66·9 | | 39·47 | | 71 |
| | | 0·08 | | 0·8 | | 0·04 | | 1·1 | | 0·02 | |
| 18 | *37·48 | | 39·1 | | *10·62 | | 65·8 | | *39·49 | | 68 |
| | | 0·10 | | 0·4 | | 0·08 | | 1·3 | | 0·08 | |
| 28 | 37·58 | | 38·7 | | 10·70 | | 64·5 | | 39·57 | | 64 |
| | | 0·15 | | 0·1 | | 0·11 | | 1·5 | | 0·14 | |
| Oct. 8 | 37·73 | | 38·6 | | 10·81 | | 63·0 | | 39·71 | | 61 |
| | | 0·18 | | 0·1 | | 0·15 | | 1·7 | | 0·20 | |
| 18 | 37·91 | | 38·7 | | 10·96 | | 61·3 | | 39·91 | | 58 |
| | | 0·23 | | 0·6 | | 0·19 | | 1·9 | | 0·26 | |
| 28 | 38·14 | | 39·3 | | 11·15 | | 59·4 | | 40·17 | | 55 |
| | | 0·25 | | 0·9 | | 0·23 | | 2·1 | | 0·32 | |
| Nov. 7 | 38·39 | | 40·2 | | 11·38 | | 57·3 | | 40·49 | | 51 |
| | | 0·29 | | 1·2 | | 0·27 | | 2·2 | | 0·37 | |
| 17 | 38·68 | | 41·4 | | 11·65 | | 55·1 | | 40·86 | | 49 |
| | | 0·31 | | 1·6 | | 0·30 | | 2·2 | | 0·41 | |
| 27 | 38·99 | | 43·0 | | 11·95 | | 52·9 | | 41·27 | | 46 |
| | | 0·33 | | 1·8 | | 0·31 | | 2·2 | | 0·45 | |
| Dec. 7 | 39·32 | | 44·8 | | 12·26 | | 50·7 | | 41·72 | | 44 |
| | | 0·33 | | 2·1 | | 0·33 | | 2·1 | | 0·48 | |
| 17 | 39·65 | | 46·9 | | 12·59 | | 48·6 | | 42·20 | | 42 |
| | | 0·32 | | 2·3 | | 0·33 | | 2·0 | | 0·48 | |
| 27 | 39·97 | | 49·2 | | 12·92 | | 46·6 | | 42·68 | | 41 |
| | | 0·31 | | 2·3 | | 0·32 | | 1·7 | | 0·48 | |
| 37 | 40·28 | | 51·5 | | 13·24 | | 44·9 | | 43·16 | | 40 |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | β Chamæleontis. | | | | α¹ Crucis. | | | | β Corvi. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m 12 9 | | ° ′ 78 26 | | h m 12 18 | | ° ′ 62 14 | | h m 12 26 | | ° ′ 22 32 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 27·14 | 1·17 | 53·0 | 1·9 | 3·60 | 0·57 | 8·7 | 2·0 | 16·57 | 0·34 | 19·7 | 2·2 |
| 11 | 28·31 | 1·07 | 54·9 | 2·3 | 4·17 | 0·53 | 10·7 | 2·5 | 16·91 | 0·32 | 21·9 | 2·3 |
| 21 | 29·38 | 0·97 | 57·2 | 2·8 | 4·70 | 0·48 | 13·2 | 2·8 | 17·23 | 0·29 | 24·2 | 2·3 |
| 31 | 30·35 | | 60·0 | | 5·18 | | 16·0 | | 17·52 | | 26·5 | |
| | | 0·82 | | 3·2 | | 0·41 | | 3·2 | | 0·26 | | 2·3 |
| Feb. 10 | 31·17 | 0·66 | 63·2 | 3·5 | 5·59 | 0·35 | 19·2 | 3·3 | 17·78 | 0·22 | 28·8 | 2·2 |
| 20 | 31·83 | 0·51 | 66·7 | 3·7 | 5·94 | 0·27 | 22·5 | 3·5 | 18·00 | 0·18 | 31·0 | 2·1 |
| Mar. 2 | 32·34 | 0·34 | 70·4 | 3·8 | 6·21 | 0·20 | 26·0 | 3·5 | 18·18 | 0·13 | 33·1 | 2·0 |
| 12 | 32·68 | | 74·2 | | 6·41 | | 29·5 | | 18·31 | | 35·1 | |
| | | 0·17 | | 3·7 | | 0·12 | | 3·4 | | 0·10 | | 1·7 |
| 22 | 32·85 | 0·01 | 77·9 | 3·8 | 6·53 | 0·05 | 32·9 | 3·4 | 18·41 | 0·05 | 36·8 | 1·5 |
| Apr. 1 | 32·86 | 0·14 | 81·7 | 3·5 | 6·58 | 0·01 | 36·3 | 3·1 | 18·46 | 0·03 | 38·3 | 1·3 |
| 11 | 32·72 | 0·30 | 85·2 | 3·4 | 6·57 | 0·07 | 39·4 | 3·0 | 18·49 | 0·01 | 39·6 | 1·0 |
| 21 | 32·42 | | 88·6 | | 6·50 | | 42·4 | | 18·48 | | 40·6 | |
| | | 0·43 | | 3·1 | | 0·13 | | 2·6 | | 0·03 | | 0·8 |
| May 1 | 31·99 | 0·55 | 91·7 | 2·7 | 6·37 | 0·18 | 45·0 | 2·3 | 18·45 | 0·06 | 41·4 | 0·6 |
| 11 | 31·44 | 0·65 | 94·4 | 2·3 | 6·19 | 0·23 | 47·3 | 1·9 | 18·39 | 0·07 | 42·0 | 0·4 |
| 21 | 30·79 | 0·75 | 96·7 | 1·9 | 5·96 | 0·26 | 49·2 | 1·5 | 18·32 | 0·09 | 42·4 | 0·1 |
| 31 | 30·04 | | 98·6 | | 5·70 | | 50·7 | | 18·23 | | 42·5 | |
| | | 0·83 | | 1·3 | | 0·29 | | 1·0 | | 0·10 | | 0·1 |
| June 10 | 29·21 | 0·87 | 99·9 | 0·9 | 5·41 | 0·31 | 51·7 | 0·5 | 18·13 | 0·11 | 42·4 | 0·4 |
| 20 | 28·34 | 0·90 | 100·8 | 0·3 | 5·10 | 0·33 | 52·2 | 0·0 | 18·02 | 0·12 | 42·0 | 0·5 |
| 30 | 27·44 | 0·91 | 101·1 | 0·3 | 4·77 | 0·33 | 52·2 | 0·4 | 17·90 | 0·12 | 41·5 | 0·7 |
| July 10 | 26·53 | | 100·8 | | 4·44 | | 51·8 | | 17·78 | | 40·8 | |
| | | 0·88 | | 0·8 | | 0·33 | | 0·9 | | 0·12 | | 0·9 |
| 20 | 25·65 | 0·83 | 100·0 | 1·3 | 4·11 | 0·31 | 50·9 | 1·4 | 17·66 | 0·11 | 39·9 | 1·0 |
| 30 | 24·82 | 0·74 | 98·7 | 1·8 | 3·80 | 0·28 | 49·5 | 1·8 | 17·55 | 0·11 | 38·9 | 1·2 |
| Aug. 9 | 24·08 | 0·64 | 96·9 | 2·3 | 3·52 | 0·24 | 47·7 | 2·1 | 17·44 | 0·09 | 37·7 | 1·2 |
| 19 | 23·44 | | 94·6 | | 3·28 | | 45·6 | | 17·35 | | 36·5 | |
| | | 0·50 | | 2·5 | | 0·20 | | 2·4 | | 0·07 | | 1·3 |
| 29 | 22·94 | 0·33 | 92·1 | 2·9 | 3·08 | 0·12 | 43·2 | 2·6 | 17·28 | 0·04 | 35·2 | 1·2 |
| Sept. 8 | 22·61 | 0·16 | 89·2 | 3·0 | 2·96 | 0·06 | 40·6 | 2·8 | 17·24 | 0·01 | 34·0 | 1·1 |
| 18 | 22·45 | 0·05 | 86·2 | 3·4 | 2·90 | 0·04 | 37·8 | 2·7 | 17·23 | 0·03 | 32·9 | 1·1 |
| 28 | *22·50 | | 82·8 | | * 2·94 | | 35·1 | | *17·26 | | 31·8 | |
| | | 0·26 | | 2·9 | | 0·12 | | 2·7 | | 0·07 | | 0·8 |
| Oct. 8 | 22·76 | 0·46 | 79·9 | 2·8 | 3·06 | 0·21 | 32·4 | 2·5 | 17·33 | 0·12 | 31·0 | 0·5 |
| 18 | 23·22 | 0·66 | 77·1 | 2·5 | 3·27 | 0·30 | 29·9 | 2·1 | 17·45 | 0·17 | 30·5 | 0·1 |
| 28 | 23·88 | 0·83 | 74·6 | 2·1 | 3·57 | 0·39 | 27·8 | 1·6 | 17·62 | 0·21 | 30·4 | 0·2 |
| Nov. 7 | 24·71 | | 72·5 | | 3·96 | | 26·2 | | 17·83 | | 30·6 | |
| | | 0·98 | | 1·5 | | 0·45 | | 1·1 | | 0·26 | | 0·5 |
| 17 | 25·69 | 1·11 | 71·0 | 1·0 | 4·41 | 0·52 | 25·1 | 0·6 | 18·09 | 0·29 | 31·1 | 1·0 |
| 27 | 26·80 | 1·18 | 70·0 | 0·3 | 4·93 | 0·56 | 24·5 | 0·0 | 18·38 | 0·32 | 32·1 | 1·3 |
| Dec. 7 | 27·98 | 1·23 | 69·7 | 0·3 | 5·49 | 0·58 | 24·5 | 0·6 | 18·70 | 0·34 | 33·4 | 1·6 |
| 17 | 29·21 | | 70·0 | | 6·07 | | 25·1 | | 19·04 | | 35·0 | |
| | | 1·23 | | 0·9 | | 0·59 | | 1·2 | | 0·34 | | 1·8 |
| 27 | 30·44 | 1·18 | 70·9 | 1·5 | 6·66 | 0·58 | 26·3 | 1·7 | 19·38 | 0·34 | 36·8 | 2·1 |
| 37 | 31·62 | | 72·4 | | 7·24 | | 28·0 | | 19·72 | | 38·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | 12 Canum Venaticorum. | | | | α Virginis. (*Spica*) | | | | η Ursæ Majoris. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 12 48 | | ° ′ 39 8 | | h m 13 17 | | ° ′ 10 21 | | h m 13 41 | | ° ′ 50 4 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 46·79 | | 64·4 | | 2·95 | | 4·4 | | 25·44 | | 59·6 | |
| | | 0·38 | | 1·5 | | 0·33 | | 2·0 | | 0·43 | | 1·8 |
| 11 | 47·17 | | 62·9 | | 3·28 | | 6·4 | | 25·87 | | 57·8 | |
| | | 0·37 | | 1·0 | | 0·32 | | 2·0 | | 0·43 | | 1·7 |
| 21 | 47·54 | | 61·9 | | 3·60 | | 8·4 | | 26·30 | | 56·5 | |
| | | 0·35 | | 0·5 | | 0·30 | | 1·9 | | 0·42 | | 0·8 |
| 31 | 47·89 | | 61·4 | | 3·90 | | 10·3 | | 26·72 | | 55·9 | |
| | | 0·31 | | 0·1 | | 0·28 | | 1·8 | | 0·39 | | 0·8 |
| Feb. 10 | 48·20 | | 61·5 | | 4·18 | | 12·1 | | 27·11 | | 55·9 | |
| | | 0·27 | | 0·6 | | 0·25 | | 1·6 | | 0·36 | | 0·8 |
| 20 | 48·47 | | 62·1 | | 4·43 | | 13·7 | | 27·47 | | 56·5 | |
| | | 0·22 | | 1·0 | | 0·21 | | 1·4 | | 0·31 | | 1·7 |
| Mar. 2 | 48·69 | | 63·1 | | 4·64 | | 15·1 | | 27·78 | | 57·6 | |
| | | 0·18 | | 1·4 | | 0·18 | | 1·2 | | 0·26 | | 1·7 |
| 12 | 48·87 | | 64·5 | | 4·82 | | 16·3 | | 28·04 | | 59·3 | |
| | | 0·12 | | 1·8 | | 0·15 | | 0·9 | | 0·21 | | 2·0 |
| 22 | 48·99 | | 66·3 | | 4·97 | | 17·2 | | 28·25 | | 61·3 | |
| | | 0·07 | | 2·0 | | 0·10 | | 0·8 | | 0·15 | | 2·4 |
| Apr. 1 | 49·06 | | 68·3 | | 5·07 | | 18·0 | | 28·40 | | 63·7 | |
| | | 0·02 | | 2·2 | | 0·08 | | 0·5 | | 0·09 | | 2·6 |
| 11 | 49·08 | | 70·5 | | 5·15 | | 18·5 | | 28·49 | | 66·3 | |
| | | 0·01 | | 2·2 | | 0·04 | | 0·3 | | 0·03 | | 2·7 |
| 21 | 49·07 | | 72·7 | | 5·19 | | 18·8 | | 28·52 | | 69·0 | |
| | | 0·06 | | 2·2 | | 0·02 | | 0·1 | | 0·01 | | 2·8 |
| May 1 | 49·01 | | 74·9 | | 5·21 | | 18·9 | | 28·51 | | 71·8 | |
| | | 0·09 | | 2·1 | | 0·01 | | 0·0 | | 0·07 | | 2·6 |
| 11 | 48·92 | | 77·0 | | 5·20 | | 18·9 | | 28·44 | | 74·4 | |
| | | 0·11 | | 1·9 | | 0·03 | | 0·2 | | 0·11 | | 2·3 |
| 21 | 48·81 | | 78·9 | | 5·17 | | 18·7 | | 28·33 | | 76·9 | |
| | | 0·14 | | 1·6 | | 0·05 | | 0·3 | | 0·14 | | 2·2 |
| 31 | 48·67 | | 80·5 | | 5·12 | | 18·4 | | 28·19 | | 79·1 | |
| | | 0·15 | | 1·3 | | 0·07 | | 0·4 | | 0·18 | | 1·9 |
| June 10 | 48·52 | | 81·8 | | 5·05 | | 18·0 | | 28·01 | | 81·0 | |
| | | 0·16 | | 1·0 | | 0·08 | | 0·4 | | 0·20 | | 1·6 |
| 20 | 48·36 | | 82·8 | | 4·97 | | 17·6 | | 27·81 | | 82·6 | |
| | | 0·17 | | 0·7 | | 0·10 | | 0·6 | | 0·23 | | 1·1 |
| 30 | 48·19 | | 83·5 | | 4·87 | | 17·0 | | 27·58 | | 83·7 | |
| | | 0·18 | | 0·3 | | 0·10 | | 0·6 | | 0·24 | | 0·7 |
| July 10 | 48·01 | | 83·8 | | 4·77 | | 16·4 | | 27·34 | | 84·4 | |
| | | 0·17 | | 0·1 | | 0·12 | | 0·7 | | 0·25 | | 0·2 |
| 20 | 47·84 | | 83·7 | | 4·65 | | 15·7 | | 27·09 | | 84·6 | |
| | | 0·16 | | 0·5 | | 0·11 | | 0·7 | | 0·25 | | 0·2 |
| 30 | 47·68 | | 83·2 | | 4·54 | | 15·0 | | 26·84 | | 84·4 | |
| | | 0·16 | | 0·8 | | 0·12 | | 0·7 | | 0·25 | | 0·7 |
| Aug. 9 | 47·52 | | 82·4 | | 4·42 | | 14·3 | | 26·59 | | 83·7 | |
| | | 0·14 | | 1·2 | | 0·11 | | 0·7 | | 0·24 | | 1·2 |
| 19 | 47·38 | | 81·2 | | 4·31 | | 13·6 | | 26·35 | | 82·5 | |
| | | 0·12 | | 1·6 | | 0·10 | | 0·6 | | 0·22 | | 1·6 |
| 29 | 47·26 | | 79·6 | | 4·21 | | 13·0 | | 26·13 | | 80·9 | |
| | | 0·09 | | 1·9 | | 0·08 | | 0·6 | | 0·19 | | 2·0 |
| Sept. 8 | 47·17 | | 77·7 | | 4·13 | | 12·4 | | 25·94 | | 78·9 | |
| | | 0·05 | | 2·2 | | 0·06 | | 0·4 | | 0·16 | | 2·3 |
| 18 | 47·12 | | 75·5 | | 4·07 | | 12·0 | | 25·78 | | 76·6 | |
| | | 0·02 | | 2·5 | | 0·02 | | 0·3 | | 0·12 | | 2·7 |
| 28 | 47·10 | | 73·0 | | 4·05 | | 11·7 | | 25·66 | | 73·9 | |
| | * | 0·03 | | 3·0 | | 0·02 | | 0·0 | | 0·07 | | 3·0 |
| Oct. 8 | 47·13 | | 70·0 | | 4·07 | | 11·7 | | 25·59 | | 70·9 | |
| | | 0·09 | | 2·9 | * | 0·06 | | 0·1 | * | 0·01 | | 3·4 |
| 18 | 47·22 | | 67·1 | | 4·13 | | 11·8 | | 25·58 | | 67·4 | |
| | | 0·13 | | 3·0 | | 0·11 | | 0·4 | | 0·06 | | 3·4 |
| 28 | 47·35 | | 64·1 | | 4·24 | | 12·2 | | 25·64 | | 64·0 | |
| | | 0·18 | | 3·1 | | 0·16 | | 0·7 | | 0·12 | | 3·3 |
| Nov. 7 | 47·53 | | 61·0 | | 4·40 | | 12·9 | | 25·76 | | 60·5 | |
| | | 0·24 | | 3·0 | | 0·20 | | 1·0 | | 0·18 | | 3·4 |
| 17 | 47·77 | | 58·0 | | 4·60 | | 13·9 | | 25·94 | | 57·0 | |
| | | 0·28 | | 3·0 | | 0·24 | | 1·3 | | 0·25 | | 3·4 |
| 27 | 48·05 | | 55·0 | | 4·84 | | 15·2 | | 26·19 | | 53·6 | |
| | | 0·32 | | 2·7 | | 0·27 | | 1·5 | | 0·30 | | 3·2 |
| Dec. 7 | 48·37 | | 52·3 | | 5·11 | | 16·7 | | 26·49 | | 50·4 | |
| | | 0·36 | | 2·5 | | 0·31 | | 1·7 | | 0·35 | | 2·9 |
| 17 | 48·73 | | 49·8 | | 5·42 | | 18·4 | | 26·84 | | 47·5 | |
| | | 0·37 | | 2·2 | | 0·32 | | 1·8 | | 0·39 | | 2·5 |
| 27 | 49·10 | | 47·6 | | 5·74 | | 20·2 | | 27·23 | | 45·0 | |
| | | 0·38 | | 1·7 | | 0·33 | | 2·0 | | 0·42 | | 2·1 |
| 37 | 49·48 | | 45·9 | | 6·07 | | 22·2 | | 27·65 | | 42·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | η Bootis. R. A. | | η Bootis. Dec. North. | | β Centauri. R. A. | | β Centauri. Dec. South. | | α Bootis. (Arcturus) R. A. | | α Bootis. (Arcturus) Dec. North. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m 13 47 | | ° ′ 19 10 | | h m 13 52 | | ° ′ 59 37 | | h m 14 8 | | ° ′ 19 59 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| n. 1 | 18·71 | 0·33 | 27·3 | 2·1 | 57·65 | 0·57 | 3·9 | 0·8 | 35·92 | 0·32 | 20·0 | 2·2 |
| 11 | 19·04 | 0·32 | 25·2 | 1·7 | 58·22 | 0·56 | 4·7 | 1·3 | 36·24 | 0·33 | 17·8 | 1·9 |
| 21 | 19·36 | 0·32 | 23·5 | 1·4 | 58·78 | 0·55 | 6·0 | 1·7 | 36·57 | 0·31 | 15·9 | 1·5 |
| 31 | 19·68 | | 22·1 | | 59·33 | | 7·7 | | 36·88 | | 14·4 | |
| | | 0·30 | | 1·0 | | 0·52 | | 2·0 | | 0·31 | | 1·1 |
| b. 10 | 19·98 | 0·27 | 21·1 | 0·5 | 59·85 | 0·47 | 9·7 | 2·4 | 37·19 | 0·28 | 13·3 | 0·6 |
| 20 | 20·25 | 0·24 | 20·6 | 0·1 | 60·32 | 0·43 | 12·1 | 2·7 | 37·47 | 0·25 | 12·7 | 0·2 |
| r. 2 | 20·49 | 0·21 | 20·5 | 0·3 | 60·75 | 0·37 | 14·8 | 2·8 | 37·72 | 0·22 | 12·5 | 0·2 |
| 12 | 20·70 | | 20·8 | | 61·12 | | 17·6 | | 37·94 | | 12·7 | |
| | | 0·17 | | 0·6 | | 0·31 | | 2·9 | | 0·19 | | 0·6 |
| 22 | 20·87 | 0·13 | 21·4 | 1·0 | 61·43 | 0·25 | 20·5 | 3·0 | 38·13 | 0·15 | 13·3 | 1·0 |
| r. 1 | 21·00 | 0·10 | 22·4 | 1·3 | 61·68 | 0·19 | 23·5 | 2·9 | 38·28 | 0·12 | 14·3 | 1·2 |
| 11 | 21·10 | 0·06 | 23·7 | 1·4 | 61·87 | 0·14 | 26·4 | 2·9 | 38·40 | 0·08 | 15·5 | 1·5 |
| 21 | 21·16 | | 25·1 | | 62·01 | | 29·3 | | 38·48 | | 17·0 | |
| | | 0·03 | | 1·6 | | 0·07 | | 2·7 | | 0·05 | | 1·6 |
| ay 1 | 21·19 | 0·00 | 26·7 | 1·6 | 62·08 | 0·02 | 32·0 | 2·6 | 38·53 | 0·02 | 18·6 | 1·6 |
| 11 | 21·19 | 0·03 | 28·3 | 1·6 | 62·10 | 0·04 | 34·6 | 2·3 | 38·55 | 0·01 | 20·2 | 1·7 |
| 21 | 21·16 | 0·04 | 29·9 | 1·5 | 62·06 | 0·09 | 36·9 | 2·1 | 38·54 | 0·04 | 21·9 | 1·6 |
| 31 | 21·12 | | 31·4 | | 61·97 | | 39·0 | | 38·50 | | 23·5 | |
| | | 0·08 | | 1·4 | | 0·15 | | 1·7 | | 0·06 | | 1·5 |
| ne 10 | 21·04 | 0·09 | 32·8 | 1·3 | 61·82 | 0·18 | 40·7 | 1·4 | 38·44 | 0·09 | 25·0 | 1·4 |
| 20 | 20·95 | 0·10 | 34·1 | 1·1 | 61·64 | 0·23 | 42·1 | 1·0 | 38·35 | 0·10 | 26·4 | 1·1 |
| 30 | 20·85 | 0·12 | 35·2 | 0·8 | 61·41 | 0·27 | 43·1 | 0·5 | 38·25 | 0·12 | 27·5 | 0·9 |
| ly 10 | 20·73 | | 36·0 | | 61·14 | | 43·6 | | 38·13 | | 28·4 | |
| | | 0·14 | | 0·6 | | 0·29 | | 0·1 | | 0·14 | | 0·7 |
| 20 | 20·59 | 0·13 | 36·6 | 0·4 | 60·85 | 0·30 | 43·7 | 0·3 | 37·99 | 0·14 | 29·1 | 0·5 |
| 30 | 20·46 | 0·14 | 37·0 | 0·1 | 60·55 | 0·32 | 43·4 | 0·8 | 37·85 | 0·15 | 29·6 | 0·1 |
| ug. 9 | 20·32 | 0·14 | 37·1 | 0·2 | 60·23 | 0·30 | 42·6 | 1·2 | 37·70 | 0·15 | 29·7 | 0·2 |
| 19 | 20·18 | | 36·9 | | 59·93 | | 41·4 | | 37·55 | | 29·5 | |
| | | 0·13 | | 0·4 | | 0·28 | | 1·6 | | 0·15 | | 0·4 |
| 29 | 20·05 | 0·12 | 36·5 | 0·7 | 59·65 | 0·25 | 39·8 | 1·9 | 37·40 | 0·13 | 29·1 | 0·7 |
| pt. 8 | 19·93 | 0·09 | 35·8 | 1·1 | 59·40 | 0·20 | 37·9 | 2·2 | 37·27 | 0·11 | 28·4 | 1·0 |
| 18 | 19·84 | 0·06 | 34·7 | 1·3 | 59·20 | 0·14 | 35·7 | 2·4 | 37·16 | 0·09 | 27·4 | 1·4 |
| 28 | 19·78 | | 33·4 | | 59·06 | | 33·3 | | 37·07 | | 26·0 | |
| | | 0·03 | | 1·5 | | 0·06 | | 2·5 | | 0·05 | | 1·6 |
| t. 8 | 19·75 | 0·02 | 31·9 | 1·9 | 59·00 | 0·02 | 30·8 | 2·4 | 37·02 | 0·01 | 24·4 | 1·8 |
| 18 | 19·77 | 0·07 | 30·0 | 2·3 | 59·02 | 0·12 | 28·4 | 2·6 | 37·01 | 0·04 | 22·6 | 2·4 |
| 28 | *19·84 | 0·11 | 27·7 | 2·3 | *59·14 | 0·20 | 25·8 | 2·2 | *37·05 | 0·09 | 20·2 | 2·4 |
| ov. 7 | 19·95 | | 25·4 | | 59·34 | | 23·6 | | 37·14 | | 17·8 | |
| | | 0·16 | | 2·4 | | 0·29 | | 1·8 | | 0·13 | | 2·5 |
| 17 | 20·11 | 0·20 | 23·0 | 2·5 | 59·63 | 0·38 | 21·8 | 1·4 | 37·27 | 0·19 | 15·3 | 2·6 |
| 27 | 20·31 | 0·25 | 20·5 | 2·6 | 60·01 | 0·44 | 20·4 | 1·0 | 37·46 | 0·22 | 12·7 | 2·6 |
| ec. 7 | 20·56 | 0·28 | 17·9 | 2·5 | 60·45 | 0·49 | 19·4 | 0·5 | 37·68 | 0·27 | 10·1 | 2·8 |
| 17 | 20·84 | | 15·4 | | 60·94 | | 18·9 | | 37·95 | | 7·3 | |
| | | 0·31 | | 2·5 | | 0·54 | | 0·0 | | 0·29 | | 2·5 |
| 27 | 21·15 | 0·32 | 12·9 | 2·2 | 61·48 | 0·55 | 18·9 | 0·5 | 38·24 | 0·32 | 4·8 | 2·3 |
| 37 | 21·47 | | 10·7 | | 62·03 | | 19·4 | | 38·56 | | 2·5 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | $\alpha^2$ Centauri. | | | | $\epsilon$ Bootis. | | | | $\alpha^2$ Libræ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. South. | |
| | h m<br>14 29 | | ° ′<br>60 11 | | h m<br>14 38 | | ° ′<br>27 43 | | h m<br>14 42 | | ° ′<br>15 23 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 8·57 | 0·56 | 9·2 | 0·3 | 13·07 | 0·32 | 38·9 | 2·3 | 19·26 | 0·32 | 37·1 | 1·5 |
| 11 | 9·13 | 0·57 | 9·5 | 0·7 | 13·39 | 0·33 | 36·6 | 1·9 | 19·58 | 0·33 | 38·6 | 1·5 |
| 21 | 9·70 | 0·56 | 10·2 | 1·2 | 13·72 | 0·34 | 34·7 | 1·6 | 19·91 | 0·33 | 40·2 | 1·5 |
| 31 | 10·26 | | 11·4 | | 14·06 | | 33·1 | | 20·24 | | 41·8 | |
| | | 0·54 | | 1·6 | | 0·32 | | 1·0 | | 0·31 | | 1·5 |
| Feb. 10 | 10·80 | 0·51 | 13·0 | 1·9 | 14·38 | 0·31 | 32·1 | 0·5 | 20·55 | 0·30 | 43·3 | 1·5 |
| 20 | 11·31 | 0·47 | 14·9 | 2·3 | 14·69 | 0·28 | 31·6 | 0·0 | 20·85 | 0·28 | 44·7 | 1·5 |
| Mar. 2 | 11·78 | 0·42 | 17·2 | 2·4 | 14·97 | 0·26 | 31·6 | 0·5 | 21·13 | 0·25 | 46·0 | 1·5 |
| 12 | 12·20 | | 19·6 | | 15·23 | | 32·1 | | 21·38 | | 47·2 | |
| | | 0·36 | | 2·6 | | 0·22 | | 0·9 | | 0·22 | | 1·9 |
| 22 | 12·56 | 0·32 | 22·2 | 2·7 | 15·45 | 0·18 | 33·0 | 1·3 | 21·60 | 0·20 | 48·2 | 0·4 |
| Apr. 1 | 12·88 | 0·26 | 24·9 | 2·8 | 15·63 | 0·15 | 34·3 | 1·7 | 21·80 | 0·16 | 49·0 | 0·4 |
| 11 | 13·14 | 0·19 | 27·7 | 2·7 | 15·78 | 0·11 | 36·0 | 1·9 | 21·96 | 0·14 | 49·6 | 0·4 |
| 21 | 13·33 | | 30·4 | | 15·89 | | 37·9 | | 22·10 | | 50·0 | |
| | | 0·14 | | 2·7 | | 0·08 | | 2·1 | | 0·10 | | 0·2 |
| May 1 | 13·47 | 0·08 | 33·1 | 2·5 | 15·97 | 0·04 | 40·0 | 2·1 | 22·20 | 0·08 | 50·3 | 0·1 |
| 11 | 13·55 | 0·01 | 35·6 | 2·4 | 16·01 | 0·01 | 42·1 | 2·2 | 22·28 | 0·05 | 50·4 | 0·1 |
| 21 | 13·56 | 0·04 | 38·0 | 2·2 | 16·02 | 0·02 | 44·3 | 2·1 | 22·33 | 0·02 | 50·5 | 0·1 |
| 31 | 13·52 | | 40·2 | | 16·00 | | 46·4 | | 22·35 | | 50·4 | |
| | | 0·10 | | 2·0 | | 0·05 | | 1·9 | | 0·01 | | 0·2 |
| June 10 | 13·42 | 0·16 | 42·2 | 1·6 | 15·95 | 0·08 | 48·3 | 1·8 | 22·34 | 0·04 | 50·2 | 0·2 |
| 20 | 13·26 | 0·20 | 43·8 | 1·3 | 15·87 | 0·10 | 50·1 | 1·5 | 22·30 | 0·06 | 50·0 | 0·2 |
| 30 | 13·06 | 0·26 | 45·1 | 0·9 | 15·77 | 0·13 | 51·6 | 1·3 | 22·24 | 0·08 | 49·6 | 0·2 |
| July 10 | 12·80 | | 46·0 | | 15·64 | | 52·9 | | 22·16 | | 49·2 | |
| | | 0·29 | | 0·5 | | 0·15 | | 0·9 | | 0·11 | | 0·4 |
| 20 | 12·51 | 0·32 | 46·5 | 0·0 | 15·49 | 0·16 | 53·8 | 0·6 | 22·05 | 0·13 | 48·8 | 0·3 |
| 30 | 12·19 | 0·33 | 46·5 | 0·4 | 15·33 | 0·17 | 54·4 | 0·3 | 21·92 | 0·14 | 48·3 | 0·3 |
| Aug. 9 | 11·86 | 0·35 | 46·1 | 0·8 | 15·16 | 0·18 | 54·7 | 0·1 | 21·78 | 0·14 | 47·7 | 0·4 |
| 19 | 11·51 | | 45·3 | | 14·98 | | 54·6 | | 21·64 | | 47·1 | |
| | | 0·33 | | 1·3 | | 0·17 | | 0·4 | | 0·15 | | 0·4 |
| 29 | 11·18 | 0·30 | 44·0 | 1·6 | 14·81 | 0·17 | 54·2 | 0·8 | 21·49 | 0·14 | 46·5 | 0·4 |
| Sept. 8 | 10·88 | 0·27 | 42·4 | 1·9 | 14·64 | 0·14 | 53·4 | 1·1 | 21·35 | 0·12 | 45·9 | 0·3 |
| 18 | 10·61 | 0·21 | 40·5 | 2·2 | 14·50 | 0·13 | 52·3 | 1·5 | 21·23 | 0·10 | 45·4 | 0·3 |
| 28 | 10·40 | | 38·3 | | 14·37 | | 50·8 | | 21·13 | | 44·9 | |
| | | 0·14 | | 2·4 | | 0·09 | | 1·8 | | 0·06 | | 0·4 |
| Oct. 8 | 10·26 | 0·06 | 35·9 | 2·5 | 14·28 | 0·05 | 49·0 | 2·1 | 21·07 | 0·03 | 44·5 | 0·2 |
| 18 | 10·20 | 0·02 | 33·4 | 2·4 | 14·23 | 0·00 | 46·9 | 2·4 | 21·04 | 0·02 | 44·3 | 0·1 |
| 28 | 10·22 | 0·14 | 31·0 | 2·6 | 14·23 | 0·05 | 44·5 | 2·9 | 21·06 | 0·08 | 44·2 | 0·2 |
| Nov. 7 | *10·36 | | 28·4 | | *14·28 | | 41·6 | | *21·14 | | 44·4 | |
| | | 0·22 | | 2·0 | | 0·11 | | 2·8 | | 0·13 | | 0·3 |
| 17 | 10·58 | 0·31 | 26·4 | 1·8 | 14·39 | 0·15 | 38·8 | 2·9 | 21·27 | 0·17 | 44·9 | 0·4 |
| 27 | 10·89 | 0·39 | 24·6 | 1·4 | 14·54 | 0·21 | 35·9 | 2·9 | 21·44 | 0·22 | 45·5 | 0·7 |
| Dec. 7 | 11·28 | 0·45 | 23·2 | 0·9 | 14·75 | 0·25 | 33·0 | 2·9 | 21·66 | 0·26 | 46·4 | 1·7 |
| 17 | 11·73 | | 22·3 | | 15·00 | | 30·1 | | 21·92 | | 47·6 | |
| | | 0·50 | | 0·5 | | 0·28 | | 2·7 | | 0·29 | | 1·[illegible] |
| 27 | 12·23 | 0·54 | 21·8 | 0·0 | 15·28 | 0·31 | 27·4 | 2·4 | 22·21 | 0·31 | 48·9 | 1·[illegible] |
| 37 | 12·77 | | 21·8 | | 15·59 | | 25·0 | | 22·52 | | 50·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | β Ursæ Minoris. | | | | β Libræ. | | | | α Coronæ Borealis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 14 51 | | ° ′ 74 46 | | h m 15 8 | | ° ′ 8 48 | | h m 15 28 | | ° ′ 27 14 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| n. 1 | 9·81 | 0·77 | 61·7 | 2·2 | 40·63 | 0·31 | 25·0 | 1·6 | 7·27 | 0·29 | 14·6 | 2·5 |
| 11 | 10·58 | 0·84 | 59·5 | 1·6 | 40·94 | 0·31 | 26·6 | 1·6 | 7·56 | 0·31 | 12·1 | 2·2 |
| 21 | 11·42 | 0·88 | 57·9 | 1·0 | 41·25 | 0·32 | 28·2 | 1·5 | 7·87 | 0·33 | 9·9 | 1·7 |
| 31 | 12·30 | | 56·9 | | 41·57 | | 29·7 | | 8·20 | | 8·2 | |
| | | 0·88 | | 0·3 | | 0·31 | | 1·4 | | 0·32 | | 1·4 |
| b. 10 | 13·18 | 0·86 | 56·6 | 0·4 | 41·88 | 0·30 | 31·1 | 1·3 | 8·52 | 0·32 | 6·8 | 0·8 |
| 20 | 14·04 | 0·81 | 57·0 | 1·0 | 42·18 | 0·28 | 32·4 | 1·0 | 8·84 | 0·30 | 6·0 | 0·2 |
| ar. 2 | 14·85 | 0·72 | 58·0 | 1·7 | 42·46 | 0·26 | 33·4 | 0·8 | 9·14 | 0·28 | 5·8 | 0·2 |
| 12 | 15·57 | | 59·7 | | 42·72 | | 34·2 | | 9·42 | | 6·0 | |
| | | 0·62 | | 2·1 | | 0·24 | | 0·6 | | 0·26 | | 0·7 |
| 22 | 16·19 | 0·50 | 61·8 | 2·6 | 42·96 | 0·21 | 34·8 | 0·4 | 9·68 | 0·23 | 6·7 | 1·2 |
| pr. 1 | 16·69 | 0·36 | 64·4 | 3·0 | 43·17 | 0·18 | 35·2 | 0·2 | 9·91 | 0·19 | 7·9 | 1·5 |
| 11 | 17·05 | 0·22 | 67·4 | 3·1 | 43·35 | 0·16 | 35·4 | 0·0 | 10·10 | 0·16 | 9·4 | 1·9 |
| 21 | 17·27 | | 70·5 | | 43·51 | | 35·4 | | 10·26 | | 11·3 | |
| | | 0·08 | | 3·2 | | 0·12 | | 0·2 | | 0·13 | | 2·1 |
| lay 1 | 17·35 | 0·07 | 73·7 | 3·2 | 43·63 | 0·10 | 35·2 | 0·3 | 10·39 | 0·10 | 13·4 | 2·2 |
| 11 | 17·28 | 0·21 | 76·9 | 3·1 | 43·73 | 0·07 | 34·9 | 0·4 | 10·49 | 0·06 | 15·6 | 2·3 |
| 21 | 17·07 | 0·33 | 80·0 | 2·9 | 43·80 | 0·04 | 34·5 | 0·5 | 10·55 | 0·03 | 17·9 | 2·3 |
| 31 | 16·74 | | 82·9 | | 43·84 | | 34·0 | | 10·58 | | 20·2 | |
| | | 0·44 | | 2·5 | | 0·02 | | 0·5 | | 0·01 | | 2·2 |
| une 10 | 16·30 | 0·55 | 85·4 | 2·2 | 43·86 | 0·02 | 33·5 | 0·6 | 10·57 | 0·04 | 22·4 | 2·1 |
| 20 | 15·75 | 0·64 | 87·6 | 1·8 | 43·84 | 0·05 | 32·9 | 0·6 | 10·53 | 0·08 | 24·5 | 1·8 |
| 30 | 15·11 | 0·70 | 89·4 | 1·2 | 43·79 | 0·07 | 32·3 | 0·5 | 10·45 | 0·10 | 26·3 | 1·6 |
| uly 10 | 14·41 | | 90·6 | | 43·72 | | 31·8 | | 10·35 | | 27·9 | |
| | | 0·76 | | 0·8 | | 0·10 | | 0·6 | | 0·13 | | 1·4 |
| 20 | 13·65 | 0·79 | 91·4 | 0·2 | 43·62 | 0·11 | 31·2 | 0·6 | 10·22 | 0·15 | 29·3 | 1·0 |
| 30 | 12·86 | 0·82 | 91·6 | 0·3 | 43·51 | 0·14 | 30·6 | 0·5 | 10·07 | 0·17 | 30·3 | 0·6 |
| ug. 9 | 12·04 | 0·80 | 91·3 | 0·8 | 43·37 | 0·15 | 30·1 | 0·5 | 9·90 | 0·19 | 30·9 | 0·3 |
| 19 | 11·24 | | 90·5 | | 43·22 | | 29·6 | | 9·71 | | 31·2 | |
| | | 0·79 | | 1·3 | | 0·15 | | 0·4 | | 0·19 | | 0·0 |
| 29 | 10·45 | 0·75 | 89·2 | 1·8 | 43·07 | 0·14 | 29·2 | 0·4 | 9·52 | 0·19 | 31·2 | 0·4 |
| pt. 8 | 9·70 | 0·70 | 87·4 | 2·3 | 42·93 | 0·14 | 28·8 | 0·3 | 9·33 | 0·19 | 30·8 | 0·8 |
| 18 | 9·00 | 0·61 | 85·1 | 2·7 | 42·79 | 0·12 | 28·5 | 0·2 | 9·14 | 0·16 | 30·0 | 1·1 |
| 28 | 8·39 | | 82·4 | | 42·67 | | 28·3 | | 8·98 | | 28·9 | |
| | | 0·51 | | 3·0 | | 0·08 | | 0·0 | | 0·13 | | 1·5 |
| ct. 8 | 7·88 | 0·41 | 79·4 | 3·3 | 42·59 | 0·05 | 28·3 | 0·1 | 8·85 | 0·10 | 27·4 | 1·9 |
| 18 | 7·47 | 0·27 | 76·1 | 3·6 | 42·54 | 0·01 | 28·4 | 0·3 | 8·75 | 0·06 | 25·5 | 2·1 |
| 28 | 7·20 | 0·13 | 72·5 | 4·1 | 42·53 | 0·04 | 28·7 | 0·5 | 8·69 | 0·01 | 23·4 | 2·5 |
| ov. 7 | *7·07 | | 68·4 | | 42·57 | | 29·2 | | 8·68 | | 20·9 | |
| | | 0·03 | | 3·8 | * | 0·10 | | 0·8 | * | 0·05 | | 2·9 |
| 17 | 7·10 | 0·19 | 64·6 | 3·7 | 42·67 | 0·14 | 30·0 | 1·0 | 8·73 | 0·10 | 18·0 | 2·8 |
| 27 | 7·29 | 0·34 | 60·9 | 3·6 | 42·81 | 0·19 | 31·0 | 1·2 | 8·83 | 0·15 | 15·2 | 2·9 |
| ec. 7 | 7·63 | 0·48 | 57·3 | 3·3 | 43·00 | 0·23 | 32·2 | 1·4 | 8·98 | 0·20 | 12·3 | 2·9 |
| 17 | 8·11 | | 54·0 | | 43·23 | | 33·6 | | 9·18 | | 9·4 | |
| | | 0·62 | | 2·9 | | 0·27 | | 1·5 | | 0·24 | | 2·9 |
| 27 | 8·73 | 0·72 | 51·1 | 2·5 | 43·50 | 0·29 | 35·1 | 1·5 | 9·42 | 0·28 | 6·5 | 2·6 |
| 37 | 9·45 | | 48·6 | | 43·79 | | 36·6 | | 9·70 | | 3·9 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Serpentis. | | | | ζ Ursæ Minoris. | | | | β¹ Scorpii. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | |
| | h m<br>15 36 | s | ° ′<br>6 54 | ″ | h m<br>15 49 | s | ° ′<br>78 15 | ″ | h m<br>15 56 | s | ° ′<br>19 22 | ″ |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 38·12 | 0·29 | 58·2 | 2·0 | 37·15 | 0·77 | 52·7 | 2·7 | 26·03 | 0·29 | 30·3 | 0·3 |
| 11 | 38·41 | 0·30 | 56·2 | 1·9 | 37·92 | 0·92 | 50·0 | 2·3 | 26·32 | 0·32 | 31·2 | 1·7 |
| 21 | 38·71 | 0·30 | 54·3 | 1·6 | 38·84 | 1·02 | 47·7 | 1·6 | 26·64 | 0·32 | 32·3 | 1·7 |
| 31 | 39·01 | | 52·7 | | 39·86 | | 46·1 | | 26·96 | | 33·3 | |
| | | 0·30 | | 1·4 | | 1·08 | | 1·0 | | 0·32 | | 1·7 |
| Feb. 10 | 39·31 | 0·30 | 51·3 | 1·1 | 40·94 | 1·11 | 45·1 | 0·3 | 27·28 | 0·32 | 34·4 | 1·1 |
| 20 | 39·61 | 0·29 | 50·2 | 0·7 | 42·05 | 1·09 | 44·8 | 0·3 | 27·60 | 0·32 | 35·5 | 0·7 |
| Mar. 2 | 39·90 | 0·27 | 49·5 | 0·3 | 43·14 | 1·04 | 45·1 | 1·0 | 27·92 | 0·30 | 36·4 | 0·7 |
| 12 | 40·17 | | 49·2 | | 44·18 | | 46·1 | | 28·22 | | 37·3 | |
| | | 0·25 | | 0·0 | | 0·95 | | 1·6 | | 0·27 | | 0·7 |
| 22 | 40·42 | 0·22 | 49·2 | 0·3 | 45·13 | 0·82 | 47·7 | 2·1 | 28·49 | 0·26 | 38·1 | 0·7 |
| Apr. 1 | 40·64 | 0·20 | 49·5 | 0·7 | 45·95 | 0·68 | 49·8 | 2·5 | 28·75 | 0·24 | 38·7 | 0·7 |
| 11 | 40·84 | 0·17 | 50·2 | 0·9 | 46·63 | 0·51 | 52·3 | 2·9 | 28·99 | 0·21 | 39·2 | 0·7 |
| 21 | 41·01 | | 51·1 | | 47·14 | | 55·2 | | 29·20 | | 39·5 | |
| | | 0·14 | | 1·1 | | 0·34 | | 3·1 | | 0·18 | | 0·7 |
| May 1 | 41·15 | 0·11 | 52·2 | 1·3 | 47·48 | 0·15 | 58·3 | 3·3 | 29·38 | 0·15 | 39·8 | 0·7 |
| 11 | 41·26 | 0·09 | 53·5 | 1·4 | 47·63 | 0·04 | 61·6 | 3·3 | 29·53 | 0·12 | 39·9 | 0·7 |
| 21 | 41·35 | 0·05 | 54·9 | 1·4 | 47·59 | 0·22 | 64·9 | 3·1 | 29·65 | 0·10 | 40·0 | 0·7 |
| 31 | 41·40 | | 56·3 | | 47·37 | | 68·0 | | 29·75 | | 40·1 | |
| | | 0·03 | | 1·4 | | 0·39 | | 3·0 | | 0·06 | | 0·7 |
| June 10 | 41·43 | 0·01 | 57·7 | 1·3 | 46·98 | 0·56 | 71·0 | 2·7 | 29·81 | 0·02 | 40·0 | 0·7 |
| 20 | 41·42 | 0·04 | 59·0 | 1·3 | 46·42 | 0·69 | 73·7 | 2·4 | 29·83 | 0·01 | 40·0 | 0·7 |
| 30 | 41·38 | 0·06 | 60·3 | 1·1 | 45·73 | 0·83 | 76·1 | 2·0 | 29·82 | 0·04 | 39·8 | 0·7 |
| July 10 | 41·32 | | 61·4 | | 44·90 | | 78·1 | | 29·78 | | 39·7 | |
| | | 0·09 | | 1·0 | | 0·94 | | 1·5 | | 0·08 | | 0·7 |
| 20 | 41·23 | 0·12 | 62·4 | 0·8 | 43·96 | 1·01 | 79·6 | 1·0 | 29·70 | 0·11 | 39·5 | 0·7 |
| 30 | 41·11 | 0·14 | 63·2 | 0·7 | 42·95 | 1·08 | 80·6 | 0·6 | 29·59 | 0·13 | 39·2 | 0·7 |
| Aug. 9 | 40·97 | 0·15 | 63·9 | 0·5 | 41·87 | 1·12 | 81·2 | 0·0 | 29·46 | 0·15 | 38·9 | 0·7 |
| 19 | 40·82 | | 64·4 | | 40·75 | | 81·2 | | 29·31 | | 38·5 | |
| | | 0·16 | | 0·2 | | 1·13 | | 0·5 | | 0·17 | | 0·7 |
| 29 | 40·66 | 0·16 | 64·6 | 0·1 | 39·62 | 1·11 | 80·7 | 1·0 | 29·14 | 0·17 | 38·1 | 0·7 |
| Sept. 8 | 40·50 | 0·16 | 64·7 | 0·2 | 38·51 | 1·08 | 79·7 | 1·5 | 28·97 | 0·16 | 37·7 | 0·7 |
| 18 | 40·34 | 0·14 | 64·5 | 0·4 | 37·43 | 1·01 | 78·2 | 2·0 | 28·81 | 0·15 | 37·2 | 0·7 |
| 28 | 40·20 | | 64·1 | | 36·42 | | 76·2 | | 28·66 | | 36·7 | |
| | | 0·11 | | 0·6 | | 0·91 | | 2·4 | | 0·13 | | 0·7 |
| Oct. 8 | 40·09 | 0·08 | 63·5 | 0·9 | 35·51 | 0·79 | 73·8 | 2·8 | 28·53 | 0·09 | 36·3 | 0·7 |
| 18 | 40·01 | 0·05 | 62·6 | 1·1 | 34·72 | 0·65 | 71·0 | 3·1 | 28·44 | 0·05 | 35·9 | 0·7 |
| 28 | 39·96 | 0·01 | 61·5 | 1·4 | 34·07 | 0·49 | 67·9 | 3·4 | 28·39 | 0·00 | 35·6 | 0·7 |
| Nov. 7 | 39·97 | | 60·1 | | 33·58 | | 64·5 | | 28·39 | | 35·4 | |
| | * | 0·06 | | 1·8 | | 0·29 | | 3·6 | | 0·04 | | 0·7 |
| 17 | 40·03 | 0·10 | 58·3 | 1·8 | 33·29 | 0·10 | 60·9 | 4·0 | 28·43 | 0·12 | 35·4 | 0·7 |
| 27 | 40·13 | 0·15 | 56·5 | 2·0 | *33·19 | 0·12 | 56·9 | 3·7 | *28·55 | 0·15 | 35·6 | 0·7 |
| Dec. 7 | 40·28 | 0·20 | 54·5 | 2·0 | 33·31 | 0·33 | 53·2 | 3·5 | 28·70 | 0·21 | 36·0 | 0·7 |
| 17 | 40·48 | | 52·5 | | 33·64 | | 49·7 | | 28·91 | | 36·5 | |
| | | 0·24 | | 2·1 | | 0·52 | | 3·3 | | 0·24 | | 0·7 |
| 27 | 40·72 | 0·26 | 50·4 | 2·1 | 34·16 | 0·70 | 46·4 | 3·0 | 29·15 | 0·23 | 37·3 | 0·7 |
| 37 | 40·98 | | 48·3 | | 34·86 | | 43·4 | | 29·43 | | 38·2 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | δ Ophiuchi. | | | | α Scorpii. (*Antares*) | | | | η Draconis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m<br>16 6 | | ° ′<br>3 17 | | h m<br>16 19 | | ° ′<br>26 4 | | h m<br>16 21 | | ° ′<br>61 51 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| n. 1 | 13·66 | 0·27 | 26·0 | 1·6 | 54·82 | 0·29 | 50·9 | 0·5 | 52·00 | 0·35 | 49·3 | 3·1 |
| 11 | 13·93 | 0·28 | 27·6 | 1·6 | 55·11 | 0·32 | 51·4 | 0·6 | 52·35 | 0·42 | 46·2 | 2·7 |
| 21 | 14·21 | 0·30 | 29·2 | 1·4 | 55·43 | 0·33 | 52·0 | 0·7 | 52·77 | 0·46 | 43·5 | 2·2 |
| 31 | 14·51 | | 30·6 | | 55·76 | | 52·7 | | 53·23 | | 41·3 | |
| | | 0·31 | | 1·2 | | 0·34 | | 0·8 | | 0·49 | | 1·6 |
| eb. 10 | 14·82 | 0·30 | 31·8 | 1·1 | 56·10 | 0·34 | 53·5 | 0·8 | 53·72 | 0·52 | 39·7 | 0·9 |
| 20 | 15·12 | 0·30 | 32·9 | 0·8 | 56·44 | 0·33 | 54·3 | 0·8 | 54·24 | 0·51 | 38·8 | 0·3 |
| ar. 2 | 15·42 | 0·28 | 33·7 | 0·5 | 56·77 | 0·32 | 55·1 | 0·8 | 54·75 | 0·50 | 38·5 | 0·4 |
| 12 | 15·70 | | 34·2 | | 57·09 | | 55·9 | | 55·25 | | 38·9 | |
| | | 0·26 | | 0·3 | | 0·30 | | 0·8 | | 0·47 | | 1·1 |
| 22 | 15·96 | 0·25 | 34·5 | 0·0 | 57·39 | 0·28 | 56·7 | 0·7 | 55·72 | 0·43 | 40·0 | 1·6 |
| pr. 1 | 16·21 | 0·22 | 34·5 | 0·2 | 57·67 | 0·26 | 57·4 | 0·6 | 56·15 | 0·38 | 41·6 | 2·2 |
| 11 | 16·43 | 0·20 | 34·3 | 0·5 | 57·93 | 0·24 | 58·0 | 0·5 | 56·53 | 0·32 | 43·8 | 2·6 |
| 21 | 16·63 | | 33·8 | | 58·17 | | 58·5 | | 56·85 | | 46·4 | |
| | | 0·17 | | 0·6 | | 0·22 | | 0·5 | | 0·25 | | 2·9 |
| lay 1 | 16·80 | 0·15 | 33·2 | 0·8 | 58·39 | 0·19 | 59·0 | 0·5 | 57·10 | 0·17 | 49·3 | 3·2 |
| 11 | 16·95 | 0·12 | 32·4 | 0·9 | 58·58 | 0·15 | 59·5 | 0·4 | 57·27 | 0·11 | 52·5 | 3·3 |
| 21 | 17·07 | 0·09 | 31·5 | 0·9 | 58·73 | 0·13 | 59·9 | 0·4 | 57·38 | 0·03 | 55·8 | 3·3 |
| 31 | 17·16 | | 30·6 | | 58·86 | | 60·3 | | 57·41 | | 59·1 | |
| | | 0·06 | | 1·0 | | 0·08 | | 0·3 | | 0·05 | | 3·2 |
| une 10 | 17·22 | 0·03 | 29·6 | 0·9 | 58·94 | 0·05 | 60·6 | 0·3 | 57·36 | 0·12 | 62·3 | 3·1 |
| 20 | 17·25 | 0·01 | 28·7 | 1·0 | 58·99 | 0·01 | 60·9 | 0·2 | 57·24 | 0·19 | 65·4 | 2·8 |
| 30 | 17·24 | 0·04 | 27·7 | 0·8 | 59·00 | 0·03 | 61·1 | 0·1 | 57·05 | 0·25 | 68·2 | 2·4 |
| uly 10 | 17·20 | | 26·9 | | 58·97 | | 61·2 | | 56·80 | | 70·6 | |
| | | 0·07 | | 0·8 | | 0·06 | | 0·1 | | 0·31 | | 2·1 |
| 20 | 17·13 | 0·10 | 26·1 | 0·7 | 58·91 | 0·10 | 61·3 | 0·0 | 56·49 | 0·36 | 72·7 | 1·6 |
| 30 | 17·03 | 0·13 | 25·4 | 0·6 | 58·81 | 0·14 | 61·3 | 0·0 | 56·13 | 0·40 | 74·3 | 1·2 |
| ug. 9 | 16·90 | 0·14 | 24·8 | 0·5 | 58·67 | 0·15 | 61·3 | 0·2 | 55·73 | 0·44 | 75·5 | 0·6 |
| 19 | 16·76 | | 24·3 | | 58·52 | | 61·1 | | 55·29 | | 76·1 | |
| | | 0·16 | | 0·3 | | 0·18 | | 0·3 | | 0·45 | | 0·2 |
| 29 | 16·60 | 0·17 | 24·0 | 0·3 | 58·34 | 0·18 | 60·8 | 0·4 | 54·84 | 0·46 | 76·3 | 0·3 |
| ept. 8 | 16·43 | 0·16 | 23·7 | 0·2 | 58·16 | 0·18 | 60·4 | 0·5 | 54·38 | 0·46 | 76·0 | 0·9 |
| 18 | 16·27 | 0·15 | 23·5 | 0·1 | 57·98 | 0·17 | 59·9 | 0·6 | 53·92 | 0·43 | 75·1 | 1·4 |
| 28 | 16·12 | | 23·6 | | 57·81 | | 59·3 | | 53·49 | | 73·7 | |
| | | 0·13 | | 0·1 | | 0·15 | | 0·6 | | 0·40 | | 1·9 |
| ct. 8 | 15·99 | 0·10 | 23·7 | 0·4 | 57·66 | 0·12 | 58·7 | 0·6 | 53·09 | 0·36 | 71·8 | 2·3 |
| 18 | 15·89 | 0·06 | 24·1 | 0·5 | 57·54 | 0·07 | 58·1 | 0·6 | 52·73 | 0·29 | 69·5 | 2·7 |
| 28 | 15·83 | 0·02 | 24·6 | 0·8 | 57·47 | 0·03 | 57·5 | 0·6 | 52·44 | 0·22 | 66·8 | 3·0 |
| ov. 7 | 15·81 | | 25·4 | | 57·44 | | 56·9 | | 52·22 | | 63·8 | |
| | | 0·03 | | 0·9 | | 0·03 | | 0·4 | | 0·14 | | 3·4 |
| 17 | 15·84 | 0·09 | 26·3 | 1·3 | *57·47 | 0·09 | 56·5 | 0·3 | *52·08 | 0·05 | 60·4 | 3·9 |
| 27 | *15·93 | 0·13 | 27·6 | 1·3 | 57·56 | 0·14 | 56·2 | 0·2 | 52·03 | 0·05 | 56·5 | 3·7 |
| ec. 7 | 16·06 | 0·18 | 28·9 | 1·4 | 57·70 | 0·19 | 56·0 | 0·1 | 52·08 | 0·14 | 52·8 | 3·7 |
| 17 | 16·24 | | 30·3 | | 57·89 | | 56·1 | | 52·22 | | 49·1 | |
| | | 0·22 | | 1·6 | | 0·24 | | 0·2 | | 0·24 | | 3·5 |
| 27 | 16·46 | 0·25 | 31·9 | 1·6 | 58·13 | 0·27 | 56·3 | 0·4 | 52·46 | 0·31 | 45·6 | 3·3 |
| 37 | 16·71 | | 33·5 | | 58·40 | | 56·7 | | 52·77 | | 42·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Trianguli Australis. | | | | ε Ursæ Minoris. | | | |
|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | 16h | | 68° | | 17h | | 82° | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | |
| Jan. 1 | 32 18·02 | 0·60 | 43 45·7 | 1·6 | 1 50·75 | 0·68 | 16 51·4 | |
| 11 | 18·62 | 0·67 | 44·1 | 1·2 | 51·43 | 0·97 | 48·2 | |
| 21 | 19·29 | 0·72 | 42·9 | 0·8 | 52·40 | 1·20 | 45·4 | |
| 31 | 20·01 | | 42·1 | | 53·60 | | 43·0 | |
| | | 0·76 | | 0·3 | | 1·40 | | |
| Feb. 10 | 20·77 | 0·76 | 41·8 | 0·0 | 55·00 | 1·53 | 41·2 | |
| 20 | 21·53 | 0·76 | 41·8 | 0·5 | 56·53 | 1·61 | 39·9 | |
| Mar. 2 | 22·29 | 0·75 | 42·3 | 0·9 | 58·14 | 1·63 | 39·3 | |
| 12 | 23·04 | | 43·2 | | 1 59·77 | | 39·4 | |
| | | 0·72 | | 1·2 | | 1·59 | | |
| 22 | 23·76 | 0·68 | 44·4 | 1·5 | 2 1·36 | 1·49 | 40·1 | |
| Apr. 1 | 24·44 | 0·63 | 45·9 | 1·8 | 2·85 | 1·34 | 41·4 | |
| 11 | 25·07 | 0·57 | 47·7 | 2·0 | 4·19 | 1·14 | 43·2 | |
| 21 | 25·64 | | 49·7 | | 5·33 | | 45·6 | |
| | | 0·50 | | 2·2 | | 0·92 | | |
| May 1 | 26·14 | 0·42 | 51·9 | 2·4 | 6·25 | 0·65 | 48·3 | |
| 11 | 26·56 | 0·34 | 54·3 | 2·5 | 6·90 | 0·38 | 51·3 | |
| 21 | 26·90 | 0·25 | 56·8 | 2·6 | 7·28 | 0·10 | 54·5 | |
| 31 | 27·15 | | 43 59·4 | | 7·38 | | 16 57·8 | |
| | | 0·16 | | 2·5 | | 0·18 | | |
| June 10 | 27·31 | 0·06 | 44 1·9 | 2·4 | 7·20 | 0·46 | 17 1·0 | |
| 20 | 27·37 | 0·04 | 4·3 | 2·3 | 6·74 | 0·72 | 4·2 | |
| 30 | 27·33 | 0·14 | 6·6 | 2·1 | 6·02 | 0·97 | 7·1 | |
| July 10 | 27·19 | | 8·7 | | 5·05 | | 9·8 | |
| | | 0·23 | | 1·9 | | 1·18 | | |
| 20 | 26·96 | 0·32 | 10·6 | 1·5 | 3·87 | 1·38 | 12·2 | |
| 30 | 26·64 | 0·39 | 12·1 | 1·1 | 2·49 | 1·54 | 14·2 | |
| Aug. 9 | 26·25 | 0·45 | 13·2 | 0·7 | 2 0·95 | 1·66 | 15·7 | |
| 19 | 25·80 | | 13·9 | | 1 59·29 | | 16·8 | |
| | | 0·49 | | 0·3 | | 1·76 | | |
| 29 | 25·31 | 0·51 | 14·2 | 0·3 | 57·53 | 1·81 | 17·4 | |
| Sept. 8 | 24·80 | 0·51 | 13·9 | 0·7 | 55·72 | 1·81 | 17·5 | |
| 18 | 24·29 | 0·48 | 13·2 | 1·1 | 53·91 | 1·79 | 17·1 | |
| 28 | 23·81 | | 12·1 | | 52·12 | | 16·2 | |
| | | 0·43 | | 1·6 | | 1·71 | | |
| Oct. 8 | 23·38 | 0·35 | 10·5 | 2·0 | 50·41 | 1·59 | 14·8 | |
| 18 | 23·03 | 0·27 | 8·5 | 2·3 | 48·82 | 1·44 | 13·0 | |
| 28 | 22·76 | 0·15 | 6·2 | 2·5 | 47·38 | 1·24 | 10·7 | |
| Nov. 7 | 22·61 | | 3·7 | | 46·14 | | 8·0 | |
| | | 0·03 | | 2·6 | | 0·99 | | |
| 17 | 22·58 | 0·09 | 44 1·1 | 2·6 | 45·15 | 0·73 | 5·0 | |
| 27 | 22·67 | 0·24 | 43 58·5 | 2·8 | 44·42 | 0·46 | 17 1·8 | |
| Dec. 7 | * 22·91 | 0·35 | 55·7 | 2·3 | * 43·96 | 0·09 | 16 58·0 | |
| 17 | 23·26 | | 53·4 | | 43·87 | | 54·5 | |
| | | 0·47 | | 2·1 | | 0·22 | | |
| 27 | 23·73 | 0·55 | 51·3 | 1·8 | 44·09 | 0·54 | 51·0 | |
| 37 | 32 24·28 | | 43 49·5 | | 1 44·63 | | 16 47·7 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Herculis. | | | | σ Octantis. | | | |
|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | |
| | 17h | | 14° | | 17h | | 89° | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | ″ |
| Jan. 1 | 7 34·47 | | 34 16·6 | | 20 7·57 | | 15 56·2 | |
| | | 0·21 | | 2·2 | | 11·78 | | 2·7 |
| 11 | 34·68 | | 14·4 | | 20 19·35 | | 53·5 | |
| | | 0·24 | | 2·1 | | 14·26 | | 2·4 |
| 21 | 34·92 | | 12·3 | | 20 33·61 | | 51·1 | |
| | | 0·27 | | 1·9 | | 16·38 | | 2·0 |
| 31 | 35·19 | | 10·4 | | 20 49·99 | | 49·1 | |
| | | 0·28 | | 1·5 | | 18·12 | | 1·5 |
| Feb. 10 | 35·47 | | 8·9 | | 21 8·11 | | 47·6 | |
| | | 0·29 | | 1·2 | | 19·31 | | 1·1 |
| 20 | 35·76 | | 7·7 | | 21 27·42 | | 46·5 | |
| | | 0·29 | | 0·8 | | 20·00 | | 0·6 |
| Mar. 2 | 36·05 | | 6·9 | | 21 47·42 | | 45·9 | |
| | | 0·29 | | 0·4 | | 20·25 | | 0·0 |
| 12 | 36·34 | | 6·5 | | 22 7·67 | | 45·9 | |
| | | 0·29 | | 0·1 | | 20·09 | | 0·5 |
| 22 | 36·63 | | 6·6 | | 22 27·76 | | 46·4 | |
| | | 0·27 | | 0·5 | | 19·42 | | 1·0 |
| Apr. 1 | 36·90 | | 7·1 | | 22 47·18 | | 47·4 | |
| | | 0·26 | | 0·9 | | 18·41 | | 1·2 |
| 11 | 37·16 | | 8·0 | | 23 5·59 | | 48·6 | |
| | | 0·24 | | 1·3 | | 16·97 | | 1·8 |
| 21 | 37·40 | | 9·3 | | 23 22·56 | | 50·4 | |
| | | 0·22 | | 1·5 | | 15·26 | | 2·1 |
| May 1 | 37·62 | | 10·8 | | 23 37·82 | | 52·5 | |
| | | 0·19 | | 1·8 | | 13·20 | | 2·5 |
| 11 | 37·81 | | 12·6 | | 23 51·02 | | 55·0 | |
| | | 0·16 | | 2·0 | | 10·79 | | 2·7 |
| 21 | 37·97 | | 14·6 | | 24 1·81 | | 15 57·7 | |
| | | 0·14 | | 2·0 | | 8·30 | | 2·9 |
| 31 | 38·11 | | 16·6 | | 24 10·11 | | 16 0·6 | |
| | | 0·10 | | 2·0 | | 5·51 | | 3·0 |
| June 10 | 38·21 | | 18·6 | | 24 15·62 | | 3·6 | |
| | | 0·06 | | 2·1 | | 2·59 | | 3·1 |
| 20 | 38·27 | | 20·7 | | 24 18·21 | | 6·7 | |
| | | 0·03 | | 1·9 | | 0·23 | | 3·0 |
| 30 | 38·30 | | 22·6 | | 24 17·98 | | 9·7 | |
| | | 0·01 | | 1·3 | | 3·24 | | 3·0 |
| July 10 | 38·29 | | 24·4 | | 24 14·74 | | 12·7 | |
| | | 0·05 | | 1·6 | | 6·07 | | 2·7 |
| 20 | 38·24 | | 26·0 | | 24 8·67 | | 15·4 | |
| | | 0·09 | | 1·4 | | 8·59 | | 2·5 |
| 30 | 38·15 | | 27·4 | | 24 0·08 | | 17·9 | |
| | | 0·12 | | 1·2 | | 11·05 | | 2·0 |
| Aug. 9 | 38·03 | | 28·6 | | 23 49·03 | | 19·9 | |
| | | 0·14 | | 0·9 | | 13·06 | | 1·7 |
| 19 | 37·89 | | 29·5 | | 23 35·97 | | 21·6 | |
| | | 0·17 | | 0·6 | | 14·53 | | 1·1 |
| 29 | 37·72 | | 30·1 | | 23 21·44 | | 22·7 | |
| | | 0·18 | | 0·4 | | 15·66 | | 0·6 |
| Sept. 8 | 37·54 | | 30·5 | | 23 5·78 | | 23·3 | |
| | | 0·19 | | 0·1 | | 16·16 | | 0·1 |
| 18 | 37·35 | | 30·6 | | 22 49·62 | | 23·2 | |
| | | 0·19 | | 0·3 | | 15·93 | | 0·5 |
| 28 | 37·16 | | 30·3 | | 22 33·69 | | 22·7 | |
| | | 0·17 | | 0·5 | | 15·29 | | 1·3 |
| Oct. 8 | 36·99 | | 29·8 | | 22 18·40 | | 21·4 | |
| | | 0·15 | | 0·8 | | 13·89 | | 1·7 |
| 18 | 36·84 | | 29·0 | | 22 4·51 | | 19·7 | |
| | | 0·13 | | 1·1 | | 12·01 | | 2·3 |
| 28 | 36·71 | | 27·9 | | 21 52·50 | | 17·4 | |
| | | 0·08 | | 1·4 | | 9·45 | | 2·7 |
| Nov. 7 | 36·63 | | 26·5 | | 21 43·05 | | 14·7 | |
| | | 0·05 | | 1·7 | | 6·66 | | 2·9 |
| 17 | 36·58 | | 24·8 | | 21 36·39 | | 11·8 | |
| | | 0·01 | | 1·9 | | 3·44 | | 3·2 |
| 27 | 36·59 | | 22·9 | | 21 32·95 | | 8·6 | |
| | | 0·05 | | 2·1 | | 0·15 | | 3·3 |
| Dec. 7 | 36·64 | | 20·8 | | 21 33·10 | | 5·3 | |
| | | 0·12 | | 2·5 | | 3·62 | | 3·4 |
| 17 | * 36·76 | | 18·3 | | *21 36·72 | | 16 1·9 | |
| | | 0·15 | | 2·3 | | 6·96 | | 3·4 |
| 27 | 36·91 | | 16·0 | | 21 43·68 | | 15 58·5 | |
| | | 0·19 | | 2·3 | | 9·95 | | 3·0 |
| 37 | 7 37·10 | | 34 13·7 | | 21 53·63 | | 15 55·5 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | β Draconis. | | | | α Ophiuchi. | | | | γ Draconis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. North. | | R. A. | | Dec. North. | | R. A. | | Dec. North. | |
| | h m 17 26 | | ° ′ 52 24 | | h m 17 27 | | ° ′ 12 40 | | h m 17 52 | | ° ′ 51 30 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 54·40 | 0·21 | 63·5 | 3·3 | 44·02 | 0·19 | 40·5 | 2·1 | 58·88 | 0·17 | 34·0 | 3·2 |
| 11 | 54·61 | 0·27 | 60·2 | 3·1 | 44·21 | 0·23 | 38·4 | 2·0 | 59·05 | 0·23 | 30·7 | 3·1 |
| 21 | 54·88 | 0·32 | 57·1 | 2·7 | 44·44 | 0·25 | 36·4 | 1·8 | 59·28 | 0·28 | 27·5 | 2·8 |
| 31 | 55·20 | | 54·4 | | 44·69 | | 34·6 | | 59·56 | | 24·7 | |
| | | 0·36 | | 2·2 | | 0·27 | | 1·5 | | 0·33 | | 2·4 |
| Feb. 10 | 55·56 | 0·38 | 52·2 | 1·6 | 44·96 | 0·28 | 33·1 | 1·2 | 59·89 | 0·36 | 22·3 | 1·9 |
| 20 | 55·94 | 0·40 | 50·6 | 1·1 | 45·24 | 0·29 | 31·9 | 0·8 | 60·25 | 0·38 | 20·4 | 1·2 |
| Mar. 2 | 56·34 | 0·41 | 49·5 | 0·4 | 45·53 | 0·29 | 31·1 | 0·4 | 60·63 | 0·40 | 19·1 | 0·7 |
| 12 | 56·75 | | 49·1 | | 45·82 | | 30·7 | | 61·03 | | 18·4 | |
| | | 0·41 | | 0·3 | | 0·29 | | 0·0 | | 0·40 | | 3·9 |
| 22 | 57·16 | 0·39 | 49·4 | 0·9 | 46·11 | 0·28 | 30·7 | 0·5 | 61·43 | 0·39 | 18·4 | 0·4 |
| Apr. 1 | 57·55 | 0·36 | 50·3 | 1·5 | 46·39 | 0·26 | 31·2 | 0·8 | 61·82 | 0·38 | 19·0 | 1·3 |
| 11 | 57·91 | 0·34 | 51·8 | 2·0 | 46·65 | 0·25 | 32·0 | 1·2 | 62·20 | 0·35 | 20·3 | 1·9 |
| 21 | 58·25 | | 53·8 | | 46·90 | | 33·2 | | 62·55 | | 22·1 | |
| | | 0·30 | | 2·5 | | 0·23 | | 1·5 | | 0·32 | | 2·2 |
| May 1 | 58·55 | 0·25 | 56·3 | 2·8 | 47·13 | 0·21 | 34·7 | 1·7 | 62·87 | 0·28 | 24·4 | 2·7 |
| 11 | 58·80 | 0·20 | 59·1 | 3·1 | 47·34 | 0·19 | 36·4 | 1·8 | 63·15 | 0·24 | 27·1 | 3·0 |
| 21 | 59·00 | 0·14 | 62·2 | 3·2 | 47·53 | 0·15 | 38·2 | 2·0 | 63·39 | 0·18 | 30·1 | 3·2 |
| 31 | 59·14 | | 65·4 | | 47·68 | | 40·2 | | 63·57 | | 33·3 | |
| | | 0·09 | | 3·3 | | 0·12 | | 2·0 | | 0·13 | | 3·2 |
| June 10 | 59·23 | 0·03 | 68·7 | 3·3 | 47·80 | 0·08 | 42·2 | 2·0 | 63·70 | 0·07 | 36·6 | 3·3 |
| 20 | 59·26 | 0·03 | 72·0 | 3·2 | 47·88 | 0·05 | 44·2 | 2·0 | 63·77 | 0·01 | 39·9 | 3·3 |
| 30 | 59·23 | 0·09 | 75·2 | 2·9 | 47·93 | 0·01 | 46·2 | 1·8 | 63·78 | 0·05 | 43·2 | 3·1 |
| July 10 | 59·14 | | 78·1 | | 47·94 | | 48·0 | | 63·73 | | 46·3 | |
| | | 0·14 | | 2·7 | | 0·03 | | 1·6 | | 0·11 | | 2·9 |
| 20 | 59·00 | 0·20 | 80·8 | 2·4 | 47·91 | 0·07 | 49·6 | 1·4 | 63·62 | 0·16 | 49·2 | 2·6 |
| 30 | 58·80 | 0·25 | 83·2 | 2·0 | 47·84 | 0·10 | 51·0 | 1·2 | 63·46 | 0·22 | 51·8 | 2·2 |
| Aug. 9 | 58·55 | 0·28 | 85·2 | 1·5 | 47·74 | 0·14 | 52·2 | 1·0 | 63·24 | 0·26 | 54·0 | 1·9 |
| 19 | 58·27 | | 86·7 | | 47·60 | | 53·2 | | 62·98 | | 55·9 | |
| | | 0·32 | | 1·1 | | 0·16 | | 0·7 | | 0·30 | | 1·4 |
| 29 | 57·95 | 0·35 | 87·8 | 0·6 | 47·44 | 0·18 | 53·9 | 0·5 | 62·68 | 0·33 | 57·3 | 0·9 |
| Sept. 8 | 57·60 | 0·35 | 88·4 | 0·1 | 47·26 | 0·18 | 54·4 | 0·2 | 62·35 | 0·34 | 58·2 | 0·5 |
| 18 | 57·25 | 0·35 | 88·5 | 0·4 | 47·08 | 0·19 | 54·6 | 0·1 | 62·01 | 0·35 | 58·7 | 0·1 |
| 28 | 56·90 | | 88·1 | | 46·89 | | 54·5 | | 61·66 | | 58·6 | |
| | | 0·34 | | 0·9 | | 0·18 | | 0·4 | | 0·34 | | 0·6 |
| Oct. 8 | 56·56 | 0·32 | 87·2 | 1·4 | 46·71 | 0·16 | 54·1 | 0·7 | 61·32 | 0·32 | 58·0 | 1·0 |
| 18 | 56·24 | 0·28 | 85·8 | 1·9 | 46·55 | 0·14 | 53·4 | 1·0 | 61·00 | 0·29 | 57·0 | 1·5 |
| 28 | 55·96 | 0·23 | 83·9 | 2·4 | 46·41 | 0·10 | 52·4 | 1·2 | 60·71 | 0·25 | 55·4 | 2·1 |
| Nov. 7 | 55·73 | | 81·5 | | 46·31 | | 51·2 | | 60·46 | | 53·3 | |
| | | 0·18 | | 2·7 | | 0·05 | | 1·5 | | 0·20 | | 2·4 |
| 17 | 55·55 | 0·11 | 78·8 | 3·0 | 46·26 | 0·01 | 49·7 | 1·8 | 60·26 | 0·14 | 50·9 | 2·8 |
| 27 | 55·44 | 0·04 | 75·8 | 3·3 | 46·25 | 0·03 | 47·9 | 1·9 | 60·12 | 0·08 | 48·1 | 3·2 |
| Dec. 7 | 55·40 | 0·04 | 72·5 | 3·8 | 46·28 | 0·10 | 46·0 | 2·3 | 60·04 | 0·01 | 44·9 | 3·3 |
| 17 | *55·44 | | 68·7 | | *46·38 | | 43·7 | | 60·03 | | 41·6 | |
| | | 0·11 | | 3·5 | | 0·13 | | 2·2 | * | 0·07 | | 3·2 |
| 27 | 55·55 | 0·17 | 65·2 | 3·5 | 46·51 | 0·17 | 41·5 | 2·1 | 60·10 | 0·14 | 37·8 | 3·4 |
| 37 | 55·72 | | 61·7 | | 46·68 | | 39·4 | | 60·24 | | 34·4 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | $\mu^1$ Sagittarii. | | | | α Lyræ. (*Vega*) | | | | β Lyræ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 18 4 | | ° ′ 21 5 | | h m 18 31 | | ° ′ 38 38 | | h m 18 44 | | ° ′ 33 11 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| n. 1 | 29·41 | 0·19 | 32·0 | 0·2 | 40·33 | 0·12 | 36·1 | 3·1 | 20·62 | 0·11 | 15·6 | 3·1 |
| 11 | 29·60 | 0·23 | 32·2 | 0·2 | 40·45 | 0·16 | 33·0 | 3·0 | *20·73 | 0·15 | 12·5 | 2·8 |
| 21 | 29·83 | 0·25 | 32·4 | 0·2 | 40·61 | 0·21 | 30·0 | 2·7 | 20·88 | 0·19 | 9·7 | 2·6 |
| 31 | 30·08 | | 32·6 | | 40·82 | | 27·3 | | 21·07 | | 7·1 | |
| | | 0·28 | | 0·2 | | 0·25 | | 2·4 | | 0·23 | | 2·3 |
| eb. 10 | 30·36 | 0·29 | 32·8 | 0·1 | 41·07 | 0·28 | 24·9 | 1·9 | 21·30 | 0·25 | 4·8 | 1·9 |
| 20 | 30·65 | 0·30 | 32·9 | 0·1 | 41·35 | 0·30 | 23·0 | 1·5 | 21·55 | 0·28 | 2·9 | 1·4 |
| ar. 2 | 30·95 | 0·31 | 33·0 | 0·0 | 41·65 | 0·32 | 21·5 | 0·9 | 21·83 | 0·30 | 1·5 | 0·9 |
| 12 | 31·26 | | 33·0 | | 41·97 | | 20·6 | | 22·13 | | 0·6 | |
| | | 0·31 | | 0·1 | | 0·33 | | 0·4 | | 0·31 | | 0·4 |
| 22 | 31·57 | 0·31 | 32·9 | 0·1 | 42·30 | 0·33 | 20·2 | 0·3 | 22·44 | 0·32 | 0·2 | 0·2 |
| pr. 1 | 31·88 | 0·31 | 32·8 | 0·3 | 42·63 | 0·33 | 20·5 | 0·9 | 22·76 | 0·32 | 0·4 | 0·7 |
| 11 | 32·19 | 0·30 | 32·5 | 0·3 | 42·96 | 0·32 | 21·4 | 1·4 | 23·08 | 0·31 | 1·1 | 1·3 |
| 21 | 32·49 | | 32·2 | | 43·28 | | 22·8 | | 23·39 | | 2·4 | |
| | | 0·28 | | 0·3 | | 0·31 | | 1·8 | | 0·30 | | 1·7 |
| ay 1 | 32·77 | 0·27 | 31·9 | 0·4 | 43·59 | 0·28 | 24·6 | 2·3 | 23·69 | 0·28 | 4·1 | 2·2 |
| 11 | 33·04 | 0·24 | 31·5 | 0·4 | 43·87 | 0·25 | 26·9 | 2·7 | 23·97 | 0·25 | 6·3 | 2·5 |
| 21 | 33·28 | 0·21 | 31·1 | 0·4 | 44·12 | 0·22 | 29·6 | 2·9 | 24·22 | 0·22 | 8·8 | 2·7 |
| 31 | 33·49 | | 30·7 | | 44·34 | | 32·5 | | 24·44 | | 11·5 | |
| | | 0·18 | | 0·3 | | 0·17 | | 3·0 | | 0·19 | | 2·9 |
| ne 10 | 33·67 | 0·15 | 30·4 | 0·2 | 44·51 | 0·13 | 35·5 | 3·1 | 24·63 | 0·15 | 14·4 | 3·0 |
| 20 | 33·82 | 0·11 | 30·2 | 0·2 | 44·64 | 0·08 | 38·6 | 3·1 | 24·78 | 0·10 | 17·4 | 3·0 |
| 30 | 33·93 | 0·06 | 30·0 | 0·2 | 44·72 | 0·04 | 41·7 | 3·0 | 24·88 | 0·05 | 20·4 | 2·9 |
| ly 10 | 33·99 | | 29·8 | | 44·76 | | 44·7 | | 24·93 | | 23·3 | |
| | | 0·02 | | 0·0 | | 0·02 | | 2·9 | | 0·01 | | 2·7 |
| 20 | 34·01 | 0·02 | 29·8 | 0·0 | 44·74 | 0·07 | 47·6 | 2·7 | 24·94 | 0·04 | 26·0 | 2·6 |
| 30 | 33·99 | 0·07 | 29·8 | 0·0 | 44·67 | 0·11 | 50·3 | 2·3 | 24·90 | 0·09 | 28·6 | 2·3 |
| ug. 9 | 33·92 | 0·10 | 29·8 | 0·0 | 44·56 | 0·16 | 52·6 | 2·1 | 24·81 | 0·13 | 30·9 | 2·0 |
| 19 | 33·82 | | 29·8 | | 44·40 | | 54·7 | | 24·68 | | 32·9 | |
| | | 0·14 | | 0·0 | | 0·19 | | 1·6 | | 0·16 | | 1·6 |
| 29 | 33·68 | 0·17 | 29·8 | 0·0 | 44·21 | 0·23 | 56·3 | 1·3 | 24·52 | 0·20 | 34·5 | 1·3 |
| pt. 8 | 33·51 | 0·18 | 29·8 | 0·0 | 43·98 | 0·25 | 57·6 | 0·8 | 24·32 | 0·22 | 35·8 | 0·9 |
| 18 | 33·33 | 0·18 | 29·8 | 0·0 | 43·73 | 0·26 | 58·4 | 0·4 | 24·10 | 0·23 | 36·7 | 0·5 |
| 28 | 33·15 | | 29·8 | | 43·47 | | 58·8 | | 23·87 | | 37·2 | |
| | | 0·19 | | 0·1 | | 0·25 | | 0·1 | | 0·24 | | 0·0 |
| ct. 8 | 32·96 | 0·17 | 29·7 | 0·1 | 43·22 | 0·25 | 58·7 | 0·5 | 23·63 | 0·23 | 37·2 | 0·4 |
| 18 | 32·79 | 0·15 | 29·6 | 0·2 | 42·97 | 0·24 | 58·2 | 1·0 | 23·40 | 0·22 | 36·8 | 0·8 |
| 28 | 32·64 | 0·11 | 29·4 | 0·1 | 42·73 | 0·21 | 57·2 | 1·5 | 23·18 | 0·19 | 36·0 | 1·3 |
| ov. 7 | 32·53 | | 29·3 | | 42·52 | | 55·7 | | 22·99 | | 34·7 | |
| | | 0·07 | | 0·2 | | 0·17 | | 1·9 | | 0·16 | | 1·7 |
| 17 | 32·46 | 0·02 | 29·1 | 0·1 | 42·35 | 0·12 | 53·8 | 2·3 | 22·83 | 0·11 | 33·0 | 2·0 |
| 27 | 32·44 | 0·03 | 29·0 | 0·0 | 42·23 | 0·07 | 51·5 | 2·6 | 22·72 | 0·07 | 31·0 | 2·4 |
| ec. 7 | 32·47 | 0·07 | 29·0 | 0·0 | 42·16 | 0·02 | 48·9 | 2·8 | 22·65 | 0·02 | 28·6 | 2·6 |
| 17 | 32·54 | | 29·0 | | 42·14 | | 46·1 | | 22·63 | | 26·0 | |
| | * | 0·13 | | 0·1 | | 0·03 | | 3·0 | | 0·03 | | 2·8 |
| 27 | 32·67 | 0·16 | 29·1 | 0·2 | 42·17 | 0·10 | 43·1 | 3·5 | 22·66 | 0·08 | 23·2 | 2·9 |
| 37 | 32·83 | | 29·3 | | *42·27 | | 39·6 | | *22·74 | | 20·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STAR
### FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ζ Aquilæ. | | | | δ Aquilæ. | | | | γ Aquilæ. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. | |
| | h m 18 58 | | ° ′ 13 38 | | h m 19 17 | | ° ′ 2 48 | | h m 19 38 | | ° 10 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | |
| Jan. 1 | 16·72 | | 20·4 | | 40·50 | | 42·1 | | 53·03 | | 29· | |
| | *16·83 | 0·11 | 18·2 | 2·2 | *40·61 | 0·11 | 40·6 | 1·5 | 53·09 | 0·06 | 27· | |
| 11 | | 0·14 | | 1·9 | | 0·13 | | 1·3 | | 0·12 | | |
| 21 | 16·97 | | 16·3 | | 40·74 | | 39·3 | | *53·21 | | 25· | |
| | | 0·18 | | 1·8 | | 0·17 | | 1·2 | | 0·14 | | |
| 31 | 17·15 | | 14·5 | | 40·91 | | 38·1 | | 53·35 | | 24· | |
| | | 0·21 | | 1·6 | | 0·19 | | 1·1 | | 0·17 | | |
| Feb. 10 | 17·36 | | 12·9 | | 41·10 | | 37·0 | | 53·52 | | 22· | |
| | | 0·23 | | 1·3 | | 0·22 | | 0·8 | | 0·20 | | |
| 20 | 17·59 | | 11·6 | | 41·32 | | 36·2 | | 53·72 | | 21· | |
| | | 0·25 | | 0·9 | | 0·23 | | 0·5 | | 0·22 | | |
| Mar. 2 | 17·84 | | 10·7 | | 41·55 | | 35·7 | | 53·94 | | 20· | |
| | | 0·27 | | 0·6 | | 0·26 | | 0·3 | | 0·25 | | |
| 12 | 18·11 | | 10·1 | | 41·81 | | 35·4 | | 54·19 | | 20· | |
| | | 0·28 | | 0·2 | | 0·27 | | 0·0 | | 0·26 | | |
| 22 | 18·39 | | 9·9 | | 42·08 | | 35·4 | | 54·45 | | 20· | |
| | | 0·28 | | 0·3 | | 0·28 | | 0·4 | | 0·27 | | |
| Apr. 1 | 18·67 | | 10·2 | | 42·36 | | 35·8 | | 54·72 | | 20· | |
| | | 0·29 | | 0·7 | | 0·29 | | 0·7 | | 0·29 | | |
| 11 | 18·96 | | 10·9 | | 42·65 | | 36·5 | | 55·01 | | 21· | |
| | | 0·29 | | 1·1 | | 0·28 | | 1·0 | | 0·29 | | |
| 21 | 19·25 | | 12·0 | | 42·93 | | 37·5 | | 55·30 | | 22· | |
| | | 0·28 | | 1·4 | | 0·29 | | 1·2 | | 0·29 | | |
| May 1 | 19·53 | | 13·4 | | 43·22 | | 38·7 | | 55·59 | | 23· | |
| | | 0·27 | | 1·7 | | 0·28 | | 1·5 | | 0·28 | | |
| 11 | 19·80 | | 15·1 | | 43·50 | | 40·2 | | 55·87 | | 25· | |
| | | 0·25 | | 2·0 | | 0·26 | | 1·6 | | 0·28 | | |
| 21 | 20·05 | | 17·1 | | 43·76 | | 41·8 | | 56·15 | | 26· | |
| | | 0·22 | | 2·1 | | 0·24 | | 1·8 | | 0·25 | | |
| 31 | 20·27 | | 19·2 | | 44·00 | | 43·6 | | 56·40 | | 28· | |
| | | 0·20 | | 2·2 | | 0·22 | | 1·8 | | 0·23 | | |
| June 10 | 20·47 | | 21·4 | | 44·22 | | 45·4 | | 56·63 | | 31· | |
| | | 0·17 | | 2·3 | | 0·19 | | 1·8 | | 0·21 | | |
| 20 | 20·64 | | 23·7 | | 44·41 | | 47·2 | | 56·84 | | 33· | |
| | | 0·13 | | 2·2 | | 0·16 | | 1·7 | | 0·17 | | |
| 30 | 20·77 | | 25·9 | | 44·57 | | 48·9 | | 57·01 | | 35· | |
| | | 0·09 | | 2·2 | | 0·11 | | 1·7 | | 0·12 | | |
| July 10 | 20·86 | | 28·1 | | 44·68 | | 50·6 | | 57·13 | | 37· | |
| | | 0·04 | | 2·0 | | 0·07 | | 1·5 | | 0·09 | | |
| 20 | 20·90 | | 30·1 | | 44·75 | | 52·1 | | 57·22 | | 39· | |
| | | 0·01 | | 1·8 | | 0·03 | | 1·4 | | 0·04 | | |
| 30 | 20·91 | | 31·9 | | 44·78 | | 53·5 | | 57·26 | | 41· | |
| | | 0·04 | | 1·6 | | 0·01 | | 1·2 | | 0·00 | | |
| Aug. 9 | 20·87 | | 33·5 | | 44·77 | | 54·7 | | 57·26 | | 42· | |
| | | 0·08 | | 1·5 | | 0·06 | | 1·0 | | 0·04 | | |
| 19 | 20·79 | | 35·0 | | 44·71 | | 55·7 | | 57·22 | | 44· | |
| | | 0·12 | | 1·2 | | 0·09 | | 0·8 | | 0·09 | | |
| 29 | 20·67 | | 36·2 | | 44·62 | | 56·5 | | 57·13 | | 45· | |
| | | 0·15 | | 0·9 | | 0·13 | | 0·7 | | 0·12 | | |
| Sept. 8 | 20·52 | | 37·1 | | 44·49 | | 57·2 | | 57·01 | | 46· | |
| | | 0·17 | | 0·6 | | 0·15 | | 0·4 | | 0·14 | | |
| 18 | 20·35 | | 37·7 | | 44·34 | | 57·6 | | 56·87 | | 47· | |
| | | 0·18 | | 0·3 | | 0·17 | | 0·2 | | 0·17 | | |
| 28 | 20·17 | | 38·0 | | 44·17 | | 57·8 | | 56·70 | | 47· | |
| | | 0·19 | | 0·1 | | 0·18 | | 0·0 | | 0·18 | | |
| Oct. 8 | 19·98 | | 38·1 | | 43·99 | | 57·8 | | 56·52 | | 47· | |
| | | 0·19 | | 0·3 | | 0·18 | | 0·2 | | 0·18 | | |
| 18 | 19·79 | | 37·8 | | 43·81 | | 57·6 | | 56·34 | | 47· | |
| | | 0·17 | | 0·5 | | 0·16 | | 0·3 | | 0·17 | | |
| 28 | 19·62 | | 37·3 | | 43·65 | | 57·3 | | 56·17 | | 47· | |
| | | 0·15 | | 0·9 | | 0·14 | | 0·6 | | 0·16 | | |
| Nov. 7 | 19·47 | | 36·4 | | 43·51 | | 56·7 | | 56·01 | | 46· | |
| | | 0·12 | | 1·1 | | 0·12 | | 0·8 | | 0·13 | | |
| 17 | 19·35 | | 35·3 | | 43·39 | | 55·9 | | 55·88 | | 45· | |
| | | 0·09 | | 1·4 | | 0·09 | | 0·9 | | 0·11 | | |
| 27 | 19·26 | | 33·9 | | 43·30 | | 55·0 | | 55·77 | | 44· | |
| | | 0·04 | | 1·6 | | 0·05 | | 1·1 | | 0·07 | | |
| Dec. 7 | 19·22 | | 32·3 | | 43·25 | | 53·9 | | 55·70 | | 43· | |
| | | 0·00 | | 1·8 | | 0·00 | | 1·2 | | 0·03 | | |
| 17 | 19·22 | | 30·5 | | 43·25 | | 52·7 | | 55·67 | | 42· | |
| | | 0·04 | | 1·9 | | 0·03 | | 1·3 | | 0·00 | | |
| 27 | 19·26 | | 28·6 | | 43·28 | | 51·4 | | 55·67 | | 40· | |
| | | 0·08 | | 2·2 | | 0·07 | | 1·3 | | 0·05 | | |
| 37 | *19·34 | | 26·4 | | 43·35 | | 50·1 | | 55·72 | | 38· | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Aquilæ. (*Altair*) R. A. | | Dec. *North.* | | β Aquilæ. R. A. | | Dec. *North.* | | α² Capricorni. R. A. | | Dec. *South.* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m | | ° ′ | | h m | | ° ′ | | h m | | ° ′ | |
| | 19 43 | | 8 27 | | 19 47 | | 6 1 | | 20 9 | | 13 0 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 12·83 | 0·06 | 51·8 | 1·5 | 41·57 | 0·06 | 31·5 | 1·5 | 26·72 | 0·05 | 70·8 | 0·3 |
| 11 | 12·89 | 0·11 | 50·3 | 1·8 | 41·63 | 0·11 | 30·0 | 1·6 | 26·77 | 0·09 | 71·1 | 0·2 |
| 21 | *13·00 | 0·14 | 48·5 | 1·4 | *41·74 | 0·13 | 28·4 | 1·3 | 26·86 | 0·14 | 71·3 | 0·2 |
| 31 | 13·14 | | 47·1 | | 41·87 | | 27·1 | | *27·00 | | 71·5 | |
| | | 0·17 | | 1·3 | | 0·17 | | 1·2 | | 0·15 | | 0·0 |
| Feb. 10 | 13·31 | 0·20 | 45·8 | 1·1 | 42·04 | 0·19 | 25·9 | 0·9 | 27·15 | 0·19 | 71·5 | 0·1 |
| 20 | 13·51 | 0·22 | 44·7 | 0·8 | 42·23 | 0·22 | 25·0 | 0·7 | 27·34 | 0·21 | 71·4 | 0·3 |
| Mar. 2 | 13·73 | 0·24 | 43·9 | 0·4 | 42·45 | 0·24 | 24·3 | 0·4 | 27·55 | 0·23 | 71·1 | 0·4 |
| 12 | 13·97 | | 43·5 | | 42·69 | | 23·9 | | 27·78 | | 70·7 | |
| | | 0·26 | | 0·1 | | 0·25 | | 0·0 | | 0·26 | | 0·7 |
| 22 | 14·23 | 0·27 | 43·4 | 0·2 | 42·94 | 0·28 | 23·9 | 0·3 | 28·04 | 0·27 | 70·0 | 0·8 |
| Apr. 1 | 14·50 | 0·29 | 43·6 | 0·7 | 43·22 | 0·28 | 24·2 | 0·6 | 28·31 | 0·29 | 69·2 | 0·9 |
| 11 | 14·79 | 0·29 | 44·3 | 1·0 | 43·50 | 0·29 | 24·8 | 1·0 | 28·60 | 0·30 | 68·3 | 1·1 |
| 21 | 15·08 | | 45·3 | | 43·79 | | 25·8 | | 28·90 | | 67·2 | |
| | | 0·29 | | 1·3 | | 0·29 | | 1·3 | | 0·30 | | 1·3 |
| May 1 | 15·37 | 0·29 | 46·6 | 1·6 | 44·08 | 0·28 | 27·1 | 1·5 | 29·20 | 0·30 | 65·9 | 1·3 |
| 11 | 15·66 | 0·27 | 48·2 | 1·8 | 44·36 | 0·28 | 28·6 | 1·7 | 29·50 | 0·30 | 64·6 | 1·3 |
| 21 | 15·93 | 0·26 | 50·0 | 1·9 | 44·64 | 0·26 | 30·3 | 1·9 | 29·80 | 0·29 | 63·3 | 1·4 |
| 31 | 16·19 | | 51·9 | | 44·90 | | 32·2 | | 30·09 | | 61·9 | |
| | | 0·24 | | 2·1 | | 0·24 | | 2·0 | | 0·27 | | 1·2 |
| June 10 | 16·43 | 0·21 | 54·0 | 2·1 | 45·14 | 0·21 | 34·2 | 2·0 | 30·36 | 0·24 | 60·7 | 1·2 |
| 20 | 16·64 | 0·17 | 56·1 | 2·1 | 45·35 | 0·18 | 36·2 | 1·9 | 30·60 | 0·21 | 59·5 | 1·1 |
| 30 | 16·81 | 0·13 | 58·2 | 2·0 | 45·53 | 0·14 | 38·1 | 1·9 | 30·81 | 0·17 | 58·4 | 1·0 |
| July 10 | 16·94 | | 60·2 | | 45·67 | | 40·0 | | 30·98 | | 57·4 | |
| | | 0·10 | | 1·9 | | 0·10 | | 1·8 | | 0·13 | | 0·8 |
| 20 | 17·04 | 0·05 | 62·1 | 1·7 | 45·77 | 0·05 | 41·8 | 1·6 | 31·11 | 0·09 | 56·6 | 0·6 |
| 30 | 17·09 | 0·00 | 63·8 | 1·6 | 45·82 | 0·01 | 43·4 | 1·4 | 31·20 | 0·04 | 56·0 | 0·4 |
| Aug. 9 | 17·09 | 0·04 | 65·4 | 1·4 | 45·83 | 0·03 | 44·8 | 1·3 | 31·24 | 0·01 | 55·6 | 0·3 |
| 19 | 17·05 | | 66·8 | | 45·80 | | 46·1 | | 31·23 | | 55·3 | |
| | | 0·08 | | 1·1 | | 0·07 | | 1·0 | | 0·05 | | 0·1 |
| 29 | 16·97 | 0·11 | 67·9 | 0·9 | 45·73 | 0·11 | 47·1 | 0·8 | 31·18 | 0·09 | 55·2 | 0·0 |
| Sept. 8 | 16·86 | 0·14 | 68·8 | 0·7 | 45·62 | 0·14 | 47·9 | 0·6 | 31·09 | 0·12 | 55·2 | 0·1 |
| 18 | 16·72 | 0·16 | 69·5 | 0·4 | 45·48 | 0·16 | 48·5 | 0·3 | 30·97 | 0·15 | 55·3 | 0·2 |
| 28 | 16·56 | | 69·9 | | 45·32 | | 48·8 | | 30·82 | | 55·5 | |
| | | 0·17 | | 0·1 | | 0·17 | | 0·1 | | 0·16 | | 0·2 |
| Oct. 8 | 16·39 | 0·18 | 70·0 | 0·1 | 45·15 | 0·18 | 48·9 | 0·1 | 30·66 | 0·17 | 55·7 | 0·3 |
| 18 | 16·21 | 0·17 | 69·9 | 0·3 | 44·97 | 0·17 | 48·8 | 0·3 | 30·49 | 0·17 | 56·0 | 0·3 |
| 28 | 16·04 | 0·16 | 69·6 | 0·6 | 44·80 | 0·15 | 48·5 | 0·5 | 30·32 | 0·15 | 56·3 | 0·4 |
| Nov. 7 | 15·88 | | 69·0 | | 44·65 | | 48·0 | | 30·17 | | 56·7 | |
| | | 0·13 | | 0·8 | | 0·13 | | 0·8 | | 0·14 | | 0·3 |
| 17 | 15·75 | 0·11 | 68·2 | 1·0 | 44·52 | 0·11 | 47·2 | 1·0 | 30·03 | 0·11 | 57·0 | 0·4 |
| 27 | 15·64 | 0·07 | 67·2 | 1·2 | 44·41 | 0·07 | 46·2 | 1·1 | 29·92 | 0·08 | 57·4 | 0·4 |
| Dec. 7 | 15·57 | 0·03 | 66·0 | 1·4 | 44·34 | 0·04 | 45·1 | 1·3 | 29·84 | 0·04 | 57·8 | 0·4 |
| 17 | 15·54 | | 64·6 | | 44·30 | | 43·8 | | 29·80 | | 58·2 | |
| | | 0·01 | | 1·5 | | 0·00 | | 1·4 | | 0·01 | | 0·3 |
| 27 | 15·55 | 0·04 | 63·1 | 1·6 | 44·30 | 0·05 | 42·4 | 1·5 | 29·79 | 0·03 | 58·5 | 0·3 |
| 37 | 15·59 | | 61·5 | | 44·35 | | 40·9 | | 29·82 | | 58·8 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Pavonis. | | | | λ Ursæ Minoris. | | | |
|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | 20h | | 57° | | 20h | | 88° | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | |
| Jan. 1 | 13 19·97 | 0·05 | 13 30·7 | 2·4 | 16 14·19 | 5·04 | 50 58·0 | |
| 11 | 20·02 | 0·12 | 28·3 | 2·4 | 9·15 | 2·92 | 55·1 | |
| 21 | 20·14 | 0·21 | 25·9 | 2·6 | 6·23 | 0·79 | 52·0 | |
| 31 | * 20·35 | | 23·3 | | * 5·44 | | 48·5 | |
| | | 0·25 | | 2·5 | | 1·61 | | |
| Feb. 10 | 20·60 | 0·30 | 20·8 | 2·4 | 7·05 | 3·64 | 45·4 | |
| 20 | 20·90 | 0·35 | 18·4 | 2·2 | 10·69 | 5·57 | 42·4 | |
| Mar. 2 | 21·25 | 0·40 | 16·2 | 2·1 | 16·26 | 7·22 | 39·7 | |
| 12 | 21·65 | | 14·1 | | 23·48 | | 37·4 | |
| | | 0·43 | | 1·9 | | 8·57 | | |
| 22 | 22·08 | 0·46 | 12·2 | 1·7 | 32·05 | 9·58 | 35·5 | |
| Apr. 1 | 22·54 | 0·49 | 10·5 | 1·5 | 41·63 | 10·22 | 34·2 | |
| 11 | 23·03 | 0·50 | 9·0 | 1·1 | 16 51·85 | 10·47 | 33·5 | |
| 21 | 23·53 | | 7·9 | | 17 2·32 | | 33·4 | |
| | | 0·51 | | 0·9 | | 10·30 | | |
| May 1 | 24·04 | 0·50 | 7·0 | 0·5 | 12·62 | 9·81 | 33·8 | |
| 11 | 24·54 | 0·50 | 6·5 | 0·2 | 22·43 | 9·03 | 34·9 | |
| 21 | 25·04 | 0·47 | 6·3 | 0·2 | 31·46 | 7·87 | 36·5 | |
| 31 | 25·51 | | 6·5 | | 39·33 | | 38·6 | |
| | | 0·44 | | 0·5 | | 6·59 | | |
| June 10 | 25·95 | 0·40 | 7·0 | 0·9 | 45·92 | 5·05 | 41·2 | |
| 20 | 26·35 | 0·34 | 7·9 | 1·1 | 50·97 | 3·40 | 44·1 | |
| 30 | 26·69 | 0·28 | 9·0 | 1·4 | 54·37 | 1·71 | 47·2 | |
| July 10 | 26·97 | | 10·4 | | 56·08 | | 50·5 | |
| | | 0·21 | | 1·7 | | 0·10 | | |
| 20 | 27·18 | 0·13 | 12·1 | 1·8 | 55·98 | 1·83 | 54·0 | |
| 30 | 27·31 | 0·05 | 13·9 | 2·0 | 54·15 | 3·55 | 50 57·4 | |
| Aug. 9 | 27·36 | 0·03 | 15·9 | 2·0 | 50·60 | 5·14 | 51 0·8 | |
| 19 | 27·33 | | 17·9 | | 45·46 | | 4·1 | |
| | | 0·10 | | 1·9 | | 6·72 | | |
| 29 | 27·23 | 0·18 | 19·8 | 1·8 | 38·74 | 8·02 | 7·2 | |
| Sept. 8 | 27·05 | 0·23 | 21·6 | 1·6 | 30·72 | 9·31 | 10·1 | |
| 18 | 26·82 | 0·29 | 23·2 | 1·3 | 21·41 | 10·37 | 12·6 | |
| 28 | 26·53 | | 24·5 | | 17 11·04 | | 14·8 | |
| | | 0·32 | | 1·0 | | 11·14 | | |
| Oct. 8 | 26·21 | 0·33 | 25·5 | 0·7 | 16 59·90 | 11·69 | 16·6 | |
| 18 | 25·88 | 0·34 | 26·2 | 0·2 | 48·21 | 12·17 | 17·8 | |
| 28 | 25·54 | 0·32 | 26·4 | 0·2 | 36·04 | 12·14 | 18·5 | |
| Nov. 7 | 25·22 | | 26·2 | | 23·90 | | 18·8 | |
| | | 0·29 | | 0·7 | | 11·84 | | |
| 17 | 24·93 | 0·25 | 25·5 | 1·0 | 12·06 | 11·36 | 18·5 | |
| 27 | 24·68 | 0·19 | 24·5 | 1·4 | 16 0·70 | 10·40 | 17·6 | |
| Dec. 7 | 24·49 | 0·13 | 23·1 | 1·7 | 15 50·30 | 9·19 | 16·2 | |
| 17 | 24·36 | | 21·4 | | 41·11 | | 14·3 | |
| | | 0·06 | | 2·0 | | 7·71 | | |
| 27 | 24·30 | 0·01 | 19·4 | 2·2 | 33·40 | 5·97 | 11·9 | |
| 37 | 13 24·31 | | 13 17·2 | | 15 27·43 | | 51 9·2 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Cygni. | | | | 61 [1] Cygni. | | | | ζ Cygni. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | | R. A. | | Dec. *North.* | |
| | h m 20 36 | | ° ′ 44 43 | | h m 20 59 | | ° ′ 37 59 | | h m 21 6 | | ° ′ 29 35 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 8·14 | 0·05 | 58·2 | 2·7 | 56·76 | 0·04 | 38·3 | 2·4 | 20·21 | 0·04 | 50·9 | 2·2 |
| 11 | 8·09 | 0·00 | 55·5 | 2·9 | 56·72 | 0·00 | 35·9 | 2·5 | 20·17 | 0·00 | 48·7 | 2·3 |
| 21 | 8·09 | 0·06 | 52·6 | 3·3 | 56·72 | 0·04 | 33·4 | 2·5 | 20·17 | 0·03 | 46·4 | 2·3 |
| 31 | * 8·15 | | 49·3 | | 56·76 | | 30·9 | | 20·20 | | 44·1 | |
| | | 0·11 | | 2·8 | * | 0·09 | | 2·8 | * | 0·08 | | 2·5 |
| Feb. 10 | 8·26 | 0·16 | 46·5 | 2·7 | 56·85 | 0·14 | 28·1 | 2·4 | 20·28 | 0·12 | 41·6 | 2·1 |
| 20 | 8·42 | 0·20 | 43·8 | 2·3 | 56·99 | 0·17 | 25·7 | 2·0 | 20·40 | 0·15 | 39·5 | 1·8 |
| Mar. 2 | 8·62 | 0·25 | 41·5 | 1·9 | 57·16 | 0·22 | 23·7 | 1·7 | 20·55 | 0·19 | 37·7 | 1·5 |
| 12 | 8·87 | | 39·6 | | 57·38 | | 22·0 | | 20·74 | | 36·2 | |
| | | 0·29 | | 1·4 | | 0·25 | | 1·3 | | 0·23 | | 1·0 |
| 22 | 9·16 | 0·32 | 38·2 | 0·8 | 57·63 | 0·29 | 20·7 | 0·7 | 20·97 | 0·25 | 35·2 | 0·6 |
| Apr. 1 | 9·48 | 0·34 | 37·4 | 0·3 | 57·92 | 0·32 | 20·0 | 0·2 | 21·22 | 0·28 | 34·6 | 0·1 |
| 11 | 9·82 | 0·36 | 37·1 | 0·3 | 58·24 | 0·34 | 19·8 | 0·3 | 21·50 | 0·30 | 34·5 | 0·4 |
| 21 | 10·18 | | 37·4 | | 58·58 | | 20·1 | | 21·80 | | 34·9 | |
| | | 0·37 | | 0·9 | | 0·35 | | 0·8 | | 0·32 | | 0·8 |
| May 1 | 10·55 | 0·37 | 38·3 | 1·4 | 58·93 | 0·35 | 20·9 | 1·4 | 22·12 | 0·32 | 35·7 | 1·4 |
| 11 | 10·92 | 0·36 | 39·7 | 1·9 | 59·28 | 0·36 | 22·3 | 1·9 | 22·44 | 0·33 | 37·1 | 1·7 |
| 21 | 11·28 | 0·34 | 41·6 | 2·4 | 59·64 | 0·34 | 24·2 | 2·3 | 22·77 | 0·31 | 38·8 | 2·2 |
| 31 | 11·62 | | 44·0 | | 59·98 | | 26·5 | | 23·08 | | 41·0 | |
| | | 0·31 | | 2·7 | | 0·32 | | 2·6 | | 0·30 | | 2·4 |
| June 10 | 11·93 | 0·28 | 46·7 | 3·0 | 60·30 | 0·30 | 29·1 | 2·9 | 23·38 | 0·28 | 43·4 | 2·7 |
| 20 | 12·21 | 0·24 | 49·7 | 3·3 | 60·60 | 0·26 | 32·0 | 3·1 | 23·66 | 0·24 | 46·1 | 2·8 |
| 30 | 12·45 | 0·18 | 53·0 | 3·3 | 60·86 | 0·21 | 35·1 | 3·2 | 23·90 | 0·21 | 48·9 | 2·9 |
| July 10 | 12·63 | | 56·3 | | 61·07 | | 38·3 | | 24·11 | | 51·8 | |
| | | 0·13 | | 3·4 | | 0·17 | | 3·3 | | 0·17 | | 2·9 |
| 20 | 12·76 | 0·08 | 59·7 | 3·3 | 61·24 | 0·12 | 41·6 | 3·3 | 24·28 | 0·12 | 54·7 | 2·9 |
| 30 | 12·84 | 0·02 | 63·0 | 3·2 | 61·36 | 0·07 | 44·9 | 3·1 | 24·40 | 0·07 | 57·6 | 2·8 |
| Aug. 9 | 12·86 | 0·04 | 66·2 | 3·0 | 61·43 | 0·01 | 48·0 | 3·0 | 24·47 | 0·02 | 60·4 | 2·6 |
| 19 | 12·82 | | 69·2 | | 61·44 | | 51·0 | | 24·49 | | 63·0 | |
| | | 0·09 | | 2·8 | | 0·03 | | 2·8 | | 0·03 | | 2·4 |
| 29 | 12·73 | 0·14 | 72·0 | 2·6 | 61·41 | 0·09 | 53·8 | 2·6 | 24·46 | 0·07 | 65·4 | 2·1 |
| Sept. 8 | 12·59 | 0·19 | 74·6 | 2·1 | 61·32 | 0·12 | 56·4 | 2·2 | 24·39 | 0·11 | 67·5 | 1·8 |
| 18 | 12·40 | 0·22 | 76·7 | 1·8 | 61·20 | 0·16 | 58·6 | 1·8 | 24·28 | 0·13 | 69·3 | 1·5 |
| 28 | 12·18 | | 78·5 | | 61·04 | | 60·4 | | 24·15 | | 70·8 | |
| | | 0·24 | | 1·3 | | 0·18 | | 1·5 | | 0·17 | | 1·2 |
| Oct. 8 | 11·94 | 0·26 | 79·8 | 0·9 | 60·86 | 0·20 | 61·9 | 1·0 | 23·98 | 0·18 | 72·0 | 0·8 |
| 18 | 11·68 | 0·27 | 80·7 | 0·4 | 60·66 | 0·22 | 62·9 | 0·7 | 23·80 | 0·19 | 72·8 | 0·4 |
| 28 | 11·41 | 0·26 | 81·1 | 0·1 | 60·44 | 0·21 | 63·6 | 0·1 | 23·61 | 0·20 | 73·2 | 0·1 |
| Nov. 7 | 11·15 | | 81·0 | | 60·23 | | 63·7 | | 23·41 | | 73·1 | |
| | | 0·25 | | 0·6 | | 0·21 | | 0·3 | | 0·18 | | 0·4 |
| 17 | 10·90 | 0·23 | 80·4 | 1·1 | 60·02 | 0·19 | 63·4 | 0·8 | 23·23 | 0·17 | 72·7 | 0·8 |
| 27 | 10·67 | 0·20 | 79·3 | 1·6 | 59·83 | 0·17 | 62·6 | 1·2 | 23·06 | 0·15 | 71·9 | 1·2 |
| Dec. 7 | 10·47 | 0·16 | 77·7 | 2·0 | 59·66 | 0·13 | 61·4 | 1·7 | 22·91 | 0·13 | 70·7 | 1·6 |
| 17 | 10·31 | | 75·7 | | 59·53 | | 59·7 | | 22·78 | | 69·1 | |
| | | 0·12 | | 2·4 | | 0·11 | | 1·9 | | 0·09 | | 1·8 |
| 27 | 10·19 | 0·07 | 73·3 | 2·6 | 59·42 | 0·06 | 57·8 | 2·3 | 22·69 | 0·06 | 67·3 | 2·1 |
| 37 | 10·12 | | 70·7 | | 59·36 | | 55·5 | | 22·63 | | 65·2 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | α Cephei. | | | | β Aquarii. | | | | β Cephei. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 21 14 | | ° ′ 61 55 | | h m 21 23 | | ° ′ 6 14 | | h m 21 26 | | ° ′ 69 52 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 51·16 | 0·20 | 67·8 | 2·7 | 23·66 | 0·02 | 55·1 | 0·6 | 36·29 | 0·34 | 71·5 | 2·6 |
| 11 | 50·96 | 0·12 | 65·1 | 3·0 | 23·64 | 0·01 | 55·7 | 0·5 | 35·95 | 0·24 | 68·9 | 2·9 |
| 21 | 50·84 | 0·06 | 62·1 | 3·1 | 23·65 | 0·05 | 56·2 | 0·4 | 35·71 | 0·14 | 66·0 | 3·1 |
| 31 | 50·78 | | 59·0 | | 23·70 | | 56·6 | | 35·57 | | 62·9 | |
| | * | 0·04 | | 3·6 | | 0·07 | | 0·3 | | 0·02 | | 3·3 |
| Feb. 10 | 50·82 | 0·12 | 55·4 | 3·1 | 23·77 | 0·12 | 56·9 | 0·1 | 35·55 | 0·10 | 59·6 | 3·3 |
| 20 | 50·94 | 0·20 | 52·3 | 2·9 | *23·89 | 0·14 | 57·0 | 0·1 | *35·65 | 0·22 | 56·1 | 3·1 |
| Mar. 2 | 51·14 | 0·27 | 49·4 | 2·5 | 24·03 | 0·16 | 56·9 | 0·3 | 35·87 | 0·32 | 53·0 | 2·9 |
| 12 | 51·41 | | 46·9 | | 24·19 | | 56·6 | | 36·19 | | 50·2 | |
| | | 0·34 | | 2·2 | | 0·20 | | 0·6 | | 0·42 | | 2·3 |
| 22 | 51·75 | 0·41 | 44·7 | 1·6 | 24·39 | 0·22 | 56·0 | 0·8 | 36·61 | 0·52 | 47·9 | 1·9 |
| Apr. 1 | 52·16 | 0·45 | 43·1 | 1·0 | 24·61 | 0·25 | 55·2 | 1·0 | 37·13 | 0·58 | 46·0 | 1·4 |
| 11 | 52·61 | 0·49 | 42·1 | 0·5 | 24·86 | 0·27 | 54·2 | 1·3 | 37·71 | 0·64 | 44·6 | 0·7 |
| 21 | 53·10 | | 41·6 | | 25·13 | | 52·9 | | 38·35 | | 43·9 | |
| | | 0·52 | | 0·2 | | 0·29 | | 1·4 | | 0·67 | | 0·1 |
| May 1 | 53·62 | 0·52 | 41·8 | 0·8 | 25·42 | 0·30 | 51·5 | 1·6 | 39·02 | 0·69 | 43·8 | 0·5 |
| 11 | 54·14 | 0·52 | 42·6 | 1·4 | 25·72 | 0·30 | 49·9 | 1·7 | 39·71 | 0·68 | 44·3 | 1·1 |
| 21 | 54·66 | 0·50 | 44·0 | 1·9 | 26·02 | 0·30 | 48·2 | 1·7 | 40·39 | 0·65 | 45·4 | 1·6 |
| 31 | 55·16 | | 45·9 | | 26·32 | | 46·5 | | 41·04 | | 47·0 | |
| | | 0·46 | | 2·4 | | 0·30 | | 1·8 | | 0·61 | | 2·2 |
| June 10 | 55·62 | 0·41 | 48·3 | 2·8 | 26·62 | 0·28 | 44·7 | 1·7 | 41·65 | 0·54 | 49·2 | 2·7 |
| 20 | 56·03 | 0·36 | 51·1 | 3·1 | 26·90 | 0·25 | 43·0 | 1·7 | 42·19 | 0·47 | 51·9 | 3·0 |
| 30 | 56·39 | 0·29 | 54·2 | 3·4 | 27·15 | 0·23 | 41·3 | 1·5 | 42·66 | 0·39 | 54·9 | 3·2 |
| July 10 | 56·68 | | 57·6 | | 27·38 | | 39·8 | | 43·05 | | 58·2 | |
| | | 0·21 | | 3·5 | | 0·19 | | 1·4 | | 0·29 | | 3·5 |
| 20 | 56·89 | 0·14 | 61·1 | 3·7 | 27·57 | 0·15 | 38·4 | 1·2 | 43·34 | 0·18 | 61·7 | 3·5 |
| 30 | 57·03 | 0·06 | 64·8 | 3·6 | 27·72 | 0·11 | 37·2 | 0·9 | 43·52 | 0·08 | 65·3 | 3·7 |
| Aug. 9 | 57·09 | 0·03 | 68·4 | 3·6 | 27·83 | 0·06 | 36·3 | 0·8 | 43·60 | 0·02 | 69·0 | 3·7 |
| 19 | 57·06 | | 72·0 | | 27·89 | | 35·5 | | 43·58 | | 72·7 | |
| | | 0·10 | | 3·4 | | 0·01 | | 0·5 | | 0·13 | | 3·5 |
| 29 | 56·96 | 0·17 | 75·4 | 3·2 | 27·90 | 0·03 | 35·0 | 0·4 | 43·45 | 0·23 | 76·3 | 3·4 |
| Sept. 8 | 56·79 | 0·24 | 78·6 | 2·9 | 27·87 | 0·06 | 34·6 | 0·2 | 43·22 | 0·32 | 79·7 | 3·1 |
| 18 | 56·55 | 0·30 | 81·5 | 2·6 | 27·81 | 0·10 | 34·4 | 0·0 | 42·90 | 0·40 | 82·8 | 2·9 |
| 28 | 56·25 | | 84·1 | | 27·71 | | 34·4 | | 42·50 | | 85·7 | |
| | | 0·35 | | 2·2 | | 0·12 | | 0·2 | | 0·47 | | 2·4 |
| Oct. 8 | 55·90 | 0·38 | 86·3 | 1·7 | 27·59 | 0·14 | 34·6 | 0·3 | 42·03 | 0·52 | 88·1 | 2·0 |
| 18 | 55·52 | 0·40 | 88·0 | 1·2 | 27·45 | 0·15 | 34·9 | 0·3 | 41·51 | 0·57 | 90·1 | 1·6 |
| 28 | 55·12 | 0·42 | 89·2 | 0·6 | 27·30 | 0·15 | 35·2 | 0·5 | 40·94 | 0·59 | 91·7 | 1·0 |
| Nov. 7 | 54·70 | | 89·8 | | 27·15 | | 35·7 | | 40·35 | | 92·7 | |
| | | 0·42 | | 0·1 | | 0·14 | | 0·5 | | 0·60 | | 0·4 |
| 17 | 54·28 | 0·41 | 89·9 | 0·5 | 27·01 | 0·13 | 36·2 | 0·6 | 39·75 | 0·59 | 93·1 | 0·2 |
| 27 | 53·87 | 0·38 | 89·4 | 1·0 | 26·88 | 0·11 | 36·8 | 0·6 | 39·16 | 0·56 | 92·9 | 0·3 |
| Dec. 7 | 53·49 | 0·34 | 88·4 | 1·6 | 26·77 | 0·09 | 37·4 | 0·7 | 38·60 | 0·52 | 92·1 | 1·3 |
| 17 | 53·15 | | 86·8 | | 26·68 | | 38·1 | | 38·08 | | 90·8 | |
| | | 0·30 | | 2·1 | | 0·07 | | 0·6 | | 0·46 | | 1·9 |
| 27 | 52·85 | 0·23 | 84·7 | 2·5 | 26·61 | 0·03 | 38·7 | 0·6 | 37·62 | 0·39 | 88·9 | 2·4 |
| 37 | 52·62 | | 82·2 | | 26·58 | | 39·3 | | 37·23 | | 86·5 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| y ne th. | ε Pegasi. | | | | α Aquarii. | | | | α Gruis. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *South.* | |
| | h m<br>21 36 | | ° ′<br>9 10 | | h m<br>21 57 | | ° ′<br>1 3 | | h m<br>21 58 | | ° ′<br>47 42 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| 1 | 34·39 | | 9·7 | | 49·33 | | 68·0 | | 25·63 | | 34·3 | |
| | | 0·03 | | 1·3 | | 0·04 | | 0·7 | | 0·09 | | 1·5 |
| 11 | 34·36 | | 8·4 | | 49·29 | | 68·7 | | 25·54 | | 32·8 | |
| | | 0·01 | | 1·3 | | 0·02 | | 0·8 | | 0·05 | | 1·8 |
| 21 | 34·35 | | 7·1 | | 49·27 | | 69·5 | | 25·49 | | 31·0 | |
| | | 0·02 | | 1·2 | | 0·01 | | 0·6 | | 0·00 | | 2·0 |
| 31 | 34·37 | | 5·9 | | 49·28 | | 70·1 | | 25·49 | | 29·0 | |
| | | 0·05 | | 1·2 | | 0·03 | | 0·5 | | 0·04 | | 2·2 |
| 10 | 34·42 | | 4·7 | | 49·31 | | 70·6 | | 25·53 | | 26·8 | |
| | | 0·10 | | 1·1 | | 0·08 | | 0·5 | | 0·10 | | 2·6 |
| 20 | *34·52 | | 3·6 | | *49·39 | | 71·1 | | *25·63 | | 24·2 | |
| | | 0·12 | | 0·8 | | 0·10 | | 0·1 | | 0·14 | | 2·5 |
| 2 | 34·64 | | 2·8 | | 49·49 | | 71·2 | | 25·77 | | 21·7 | |
| | | 0·15 | | 0·5 | | 0·14 | | 0·1 | | 0·18 | | 2·6 |
| 12 | 34·79 | | 2·3 | | 49·63 | | 71·1 | | 25·95 | | 19·1 | |
| | | 0·18 | | 0·2 | | 0·16 | | 0·3 | | 0·23 | | 2·6 |
| 22 | 34·97 | | 2·1 | | 49·79 | | 70·8 | | 26·18 | | 16·5 | |
| | | 0·22 | | 0·1 | | 0·19 | | 0·6 | | 0·27 | | 2·5 |
| 1 | 35·19 | | 2·2 | | 49·98 | | 70·2 | | 26·45 | | 14·0 | |
| | | 0·24 | | 0·5 | | 0·23 | | 0·8 | | 0·30 | | 2·5 |
| 11 | 35·43 | | 2·7 | | 50·21 | | 69·4 | | 26·75 | | 11·5 | |
| | | 0·26 | | 0·8 | | 0·25 | | 1·2 | | 0·35 | | 2·3 |
| 21 | 35·69 | | 3·5 | | 50·46 | | 68·2 | | 27·10 | | 9·2 | |
| | | 0·28 | | 1·2 | | 0·27 | | 1·3 | | 0·37 | | 2·1 |
| 1 | 35·97 | | 4·7 | | 50·73 | | 66·9 | | 27·47 | | 7·1 | |
| | | 0·30 | | 1·5 | | 0·29 | | 1·6 | | 0·40 | | 1·9 |
| 11 | 36·27 | | 6·2 | | 51·02 | | 65·3 | | 27·87 | | 5·2 | |
| | | 0·30 | | 1·7 | | 0·30 | | 1·8 | | 0·41 | | 1·6 |
| 21 | 36·57 | | 7·9 | | 51·32 | | 63·5 | | 28·28 | | 3·6 | |
| | | 0·31 | | 1·9 | | 0·31 | | 1·9 | | 0·42 | | 1·3 |
| 31 | 36·88 | | 9·8 | | 51·63 | | 61·6 | | 28·70 | | 2·3 | |
| | | 0·29 | | 2·1 | | 0·30 | | 1·9 | | 0·41 | | 1·0 |
| 10 | 37·17 | | 11·9 | | 51·93 | | 59·7 | | 29·11 | | 1·3 | |
| | | 0·28 | | 2·2 | | 0·29 | | 1·9 | | 0·40 | | 0·5 |
| 20 | 37·45 | | 14·1 | | 52·22 | | 57·8 | | 29·51 | | 0·8 | |
| | | 0·26 | | 2·2 | | 0·28 | | 1·9 | | 0·38 | | 0·2 |
| 30 | 37·71 | | 16·3 | | 52·50 | | 55·9 | | 29·89 | | 0·6 | |
| | | 0·23 | | 2·2 | | 0·25 | | 1·9 | | 0·34 | | 0·2 |
| 10 | 37·94 | | 18·5 | | 52·75 | | 54·0 | | 30·23 | | 0·8 | |
| | | 0·19 | | 2·1 | | 0·21 | | 1·6 | | 0·30 | | 0·6 |
| 20 | 38·13 | | 20·6 | | 52·96 | | 52·4 | | 30·53 | | 1·4 | |
| | | 0·16 | | 2·0 | | 0·17 | | 1·6 | | 0·24 | | 0·9 |
| 30 | 38·29 | | 22·6 | | 53·13 | | 50·8 | | 30·77 | | 2·3 | |
| | | 0·11 | | 1·8 | | 0·14 | | 1·3 | | 0·19 | | 1·3 |
| 9 | 38·40 | | 24·4 | | 53·27 | | 49·5 | | 30·96 | | 3·6 | |
| | | 0·06 | | 1·7 | | 0·09 | | 1·1 | | 0·13 | | 1·5 |
| 19 | 38·46 | | 26·1 | | 53·36 | | 48·4 | | 31·09 | | 5·1 | |
| | | 0·03 | | 1·4 | | 0·05 | | 0·9 | | 0·06 | | 1·7 |
| 29 | 38·49 | | 27·5 | | 53·41 | | 47·5 | | 31·15 | | 6·8 | |
| | | 0·02 | | 1·3 | | 0·00 | | 0·7 | | 0·01 | | 1·9 |
| 8 | 38·47 | | 28·8 | | 53·41 | | 46·8 | | 31·14 | | 8·7 | |
| | | 0·06 | | 1·0 | | 0·03 | | 0·5 | | 0·06 | | 1·9 |
| 18 | 38·41 | | 29·8 | | 53·38 | | 46·3 | | 31·08 | | 10·6 | |
| | | 0·09 | | 0·7 | | 0·07 | | 0·2 | | 0·12 | | 1·9 |
| 28 | 38·32 | | 30·5 | | 53·31 | | 46·1 | | 30·96 | | 12·5 | |
| | | 0·11 | | 0·5 | | 0·10 | | 0·1 | | 0·17 | | 1·8 |
| 8 | 38·21 | | 31·0 | | 53·21 | | 46·0 | | 30·79 | | 14·3 | |
| | | 0·14 | | 0·3 | | 0·12 | | 0·1 | | 0·20 | | 1·6 |
| 18 | 38·07 | | 31·3 | | 53·09 | | 46·1 | | 30·59 | | 15·9 | |
| | | 0·15 | | 0·0 | | 0·13 | | 0·3 | | 0·22 | | 1·3 |
| 28 | 37·92 | | 31·3 | | 52·96 | | 46·4 | | 30·37 | | 17·2 | |
| | | 0·15 | | 0·3 | | 0·14 | | 0·4 | | 0·24 | | 1·0 |
| 7 | 37·77 | | 31·0 | | 52·82 | | 46·8 | | 30·13 | | 18·2 | |
| | | 0·14 | | 0·4 | | 0·14 | | 0·5 | | 0·25 | | 0·6 |
| 17 | 37·63 | | 30·6 | | 52·68 | | 47·3 | | 29·88 | | 18·8 | |
| | | 0·14 | | 0·6 | | 0·13 | | 0·6 | | 0·23 | | 0·3 |
| 27 | 37·49 | | 30·0 | | 52·55 | | 47·9 | | 29·65 | | 19·1 | |
| | | 0·12 | | 0·9 | | 0·12 | | 0·7 | | 0·22 | | 0·2 |
| 7 | 37·37 | | 29·1 | | *52·43 | | 48·6 | | 29·43 | | 18·9 | |
| | | 0·10 | | 1·0 | | 0·11 | | 0·8 | | 0·19 | | 0·5 |
| 17 | 37·27 | | 28·1 | | 52·32 | | 49·4 | | 29·24 | | 18·4 | |
| | | 0·08 | | 1·1 | | 0·08 | | 0·8 | | 0·15 | | 0·9 |
| 27 | 37·19 | | 27·0 | | 52·24 | | 50·2 | | 29·09 | | 17·5 | |
| | | 0·06 | | 1·3 | | 0·06 | | 0·8 | | 0·12 | | 1·2 |
| 37 | 37·13 | | 25·7 | | 52·18 | | 51·0 | | 28·97 | | 16·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ζ Pegasi. | | | | α Piscis Australis. (*Fomalhaut*) | | | | α Pegasi. (*Markab*) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | | Dec. *North.* | | R. A. | | Dec. *South.* | | R. A. | | Dec. *North.* | |
| | h m 22 33 | | ° ′ 10 1 | | h m 22 49 | | ° ′ 30 26 | | h m 22 57 | | ° ′ 14 22 | |
| | s | s | ″ | ″ | s | s | ″ | ″ | s | s | ″ | ″ |
| Jan. 1 | 44·27 | 0·08 | 35·1 | 1·1 | 4·36 | 0·10 | 34·3 | 0·4 | 3·02 | 0·09 | 31·2 | 1·1 |
| 11 | 44·19 | 0·05 | 34·0 | 1·1 | 4·26 | 0·07 | 33·9 | 0·7 | 2·93 | 0·08 | 30·1 | 1·3 |
| 21 | 44·14 | 0·03 | 32·9 | 1·2 | 4·19 | 0·05 | 33·2 | 1·0 | 2·85 | 0·05 | 28·8 | 1·2 |
| 31 | 44·11 | | 31·7 | | 4·14 | | 32·2 | | 2·80 | | 27·6 | |
| | | 0·01 | | 1·1 | | 0·02 | | 1·2 | | 0·03 | | 1·2 |
| Feb. 10 | 44·10 | 0·03 | 30·6 | 1·0 | 4·12 | 0·02 | 31·0 | 1·5 | 2·77 | 0·00 | 26·3 | 1·2 |
| 20 | 44·13 | 0·07 | 29·6 | 0·9 | 4·14 | 0·05 | 29·5 | 1·6 | 2·77 | 0·04 | 25·1 | 1·3 |
| Mar. 2 | *44·20 | 0·10 | 28·7 | 0·5 | 4·19 | 0·10 | 27·9 | 2·0 | 2·81 | 0·08 | 24·1 | 0·9 |
| 12 | 44·30 | | 28·2 | | *4·29 | | 25·9 | | *2·89 | | 23·2 | |
| | | 0·13 | | 0·3 | | 0·13 | | 2·0 | | 0·11 | | 0·5 |
| 22 | 44·43 | 0·16 | 27·9 | 0·0 | 4·42 | 0·17 | 23·9 | 2·2 | 3·00 | 0·14 | 22·6 | 0·3 |
| Apr. 1 | 44·59 | 0·20 | 27·9 | 0·3 | 4·59 | 0·20 | 21·7 | 2·2 | 3·14 | 0·18 | 22·3 | 0·1 |
| 11 | 44·79 | 0·24 | 28·2 | 0·7 | 4·79 | 0·24 | 19·5 | 2·3 | 3·32 | 0·22 | 22·4 | 0·4 |
| 21 | 45·03 | | 28·9 | | 5·03 | | 17·2 | | 3·54 | | 22·9 | |
| | | 0·26 | | 1·0 | | 0·27 | | 2·2 | | 0·25 | | 0·5 |
| May 1 | 45·29 | 0·28 | 29·9 | 1·4 | 5·30 | 0·30 | 15·0 | 2·2 | 3·79 | 0·28 | 23·7 | 1·1 |
| 11 | 45·57 | 0·30 | 31·3 | 1·6 | 5·60 | 0·32 | 12·8 | 2·1 | 4·07 | 0·30 | 24·8 | 1·4 |
| 21 | 45·87 | 0·31 | 32·9 | 1·8 | 5·92 | 0·34 | 10·7 | 2·0 | 4·37 | 0·31 | 26·2 | 1·7 |
| 31 | 46·18 | | 34·7 | | 6·26 | | 8·7 | | 4·68 | | 27·9 | |
| | | 0·31 | | 2·0 | | 0·34 | | 1·7 | | 0·31 | | 2·0 |
| June 10 | 46·49 | 0·30 | 36·7 | 2·1 | 6·60 | 0·35 | 7·0 | 1·5 | 4·99 | 0·31 | 29·9 | 2·1 |
| 20 | 46·79 | 0·29 | 38·8 | 2·2 | 6·95 | 0·33 | 5·5 | 1·2 | 5·30 | 0·30 | 32·0 | 2·2 |
| 30 | 47·08 | 0·26 | 41·0 | 2·2 | 7·28 | 0·31 | 4·3 | 0·9 | 5·60 | 0·28 | 34·2 | 2·2 |
| July 10 | 47·34 | | 43·2 | | 7·59 | | 3·4 | | 5·88 | | 36·5 | |
| | | 0·24 | | 2·2 | | 0·28 | | 0·6 | | 0·26 | | 2·2 |
| 20 | 47·58 | 0·20 | 45·4 | 2·1 | 7·87 | 0·25 | 2·8 | 0·2 | 6·14 | 0·22 | 38·8 | 2·2 |
| 30 | 47·78 | 0·17 | 47·5 | 1·9 | 8·12 | 0·20 | 2·6 | 0·2 | 6·36 | 0·19 | 41·0 | 2·1 |
| Aug. 9 | 47·95 | 0·12 | 49·4 | 1·8 | 8·32 | 0·16 | 2·8 | 0·4 | 6·55 | 0·14 | 43·1 | 2·0 |
| 19 | 48·07 | | 51·2 | | 8·48 | | 3·2 | | 6·69 | | 45·1 | |
| | | 0·08 | | 1·6 | | 0·11 | | 0·8 | | 0·10 | | 1·9 |
| 29 | 48·15 | 0·04 | 52·8 | 1·3 | 8·59 | 0·06 | 4·0 | 1·0 | 6·79 | 0·06 | 46·9 | 1·7 |
| Sept. 8 | 48·19 | 0·01 | 54·1 | 1·1 | 8·65 | 0·01 | 5·0 | 1·2 | 6·85 | 0·02 | 48·6 | 1·4 |
| 18 | 48·18 | 0·03 | 55·2 | 0·9 | 8·66 | 0·03 | 6·2 | 1·3 | 6·87 | 0·01 | 50·0 | 1·1 |
| 28 | 48·15 | | 56·1 | | 8·63 | | 7·5 | | 6·86 | | 51·1 | |
| | | 0·07 | | 0·6 | | 0·07 | | 1·5 | | 0·05 | | 0·9 |
| Oct. 8 | 48·08 | 0·10 | 56·7 | 0·4 | 8·56 | 0·11 | 9·0 | 1·4 | 6·81 | 0·08 | 52·0 | 0·7 |
| 18 | 47·98 | 0·11 | 57·1 | 0·2 | 8·45 | 0·13 | 10·4 | 1·3 | 6·73 | 0·10 | 52·7 | 0·4 |
| 28 | 47·87 | 0·13 | 57·3 | 0·1 | 8·32 | 0·15 | 11·7 | 1·3 | 6·63 | 0·11 | 53·1 | 0·1 |
| Nov. 7 | 47·74 | | 57·2 | | 8·17 | | 13·0 | | 6·52 | | 53·2 | |
| | | 0·13 | | 0·2 | | 0·16 | | 1·0 | | 0·13 | | 0·1 |
| 17 | 47·61 | 0·14 | 57·0 | 0·5 | 8·01 | 0·16 | 14·0 | 0·9 | 6·39 | 0·13 | 53·1 | 0·3 |
| 27 | 47·47 | 0·12 | 56·5 | 0·7 | 7·85 | 0·16 | 14·9 | 0·6 | 6·26 | 0·13 | 52·8 | 0·6 |
| Dec. 7 | 47·35 | 0·12 | 55·8 | 0·8 | 7·69 | 0·15 | 15·5 | 0·3 | 6·13 | 0·13 | 52·2 | 0·3 |
| 17 | 47·23 | | 55·0 | | 7·54 | | 15·8 | | 6·00 | | 51·4 | |
| | | 0·11 | | 1·0 | | 0·13 | | 0·0 | | 0·11 | | 0·5 |
| 27 | 47·12 | 0·09 | 54·0 | 1·1 | 7·41 | 0·11 | 15·8 | 0·2 | 5·89 | 0·11 | 50·5 | 1·2 |
| 37 | 47·03 | | 52·9 | | 7·30 | | 15·6 | | 5·78 | | 49·3 | |

## APPARENT PLACES OF THE PRINCIPAL FIXED STARS, FOR THE UPPER TRANSIT AT GREENWICH.

| Day of the Month. | ι Piscium. R. A. | | ι Piscium. Dec. North. | | γ Cephei. R. A. | | γ Cephei. Dec. North. | |
|---|---|---|---|---|---|---|---|---|
| | h 23 | | ° 4 | | h 23 | | ° 76 | |
| | m s | s | ′ ″ | ″ | m s | s | ′ ″ | ″ |
| Jan. 1 | 31 59·27 | 0·10 | 47 18·4 | 0·9 | 33 2·52 | 0·81 | 46 27·5 | 1·0 |
| 11 | 59·17 | 0·08 | 17·5 | 0·9 | 1·71 | 0·74 | 26·5 | 1·6 |
| 21 | 59·09 | 0·08 | 16·6 | 0·8 | 0·97 | 0·66 | 24·9 | 2·1 |
| 31 | 59·01 | 0·05 | 15·8 | 0·6 | 33 0·31 | 0·53 | 22·8 | 2·5 |
| Feb. 10 | 58·96 | 0·03 | 15·2 | 0·7 | 32 59·78 | 0·39 | 20·3 | 2·8 |
| 20 | 58·93 | 0·01 | 14·5 | 0·5 | 59·39 | 0·21 | 17·5 | 3·1 |
| Mar. 2 | 58·94 | 0·03 | 14·0 | 0·3 | 59·18 | 0·07 | 14·4 | 3·1 |
| 12 | 58·97 | 0·08 | 13·7 | 0·0 | 59·11 | 0·14 | 11·3 | 3·4 |
| | * | | | | * | | | |
| 22 | 59·05 | 0·11 | 13·7 | 0·3 | 59·25 | 0·32 | 7·9 | 2·9 |
| Apr. 1 | 59·16 | 0·15 | 14·0 | 0·5 | 32 59·57 | 0·48 | 5·0 | 2·6 |
| 11 | 59·31 | 0·18 | 14·5 | 0·8 | 33 0·05 | 0·64 | 2·4 | 2·2 |
| 21 | 59·49 | 0·22 | 15·3 | 1·1 | 0·69 | 0·77 | 46 0·2 | 1·8 |
| May 1 | 59·71 | 0·26 | 16·4 | 1·3 | 1·46 | 0·87 | 45 58·4 | 1·2 |
| 11 | 31 59·97 | 0·27 | 17·7 | 1·6 | 2·33 | 0·95 | 57·2 | 0·7 |
| 21 | 32 0·24 | 0·30 | 19·3 | 1·8 | 3·28 | 1·00 | 56·5 | 0·1 |
| 31 | 0·54 | 0·31 | 21·1 | 1·9 | 4·28 | 1·02 | 56·4 | 0·5 |
| June 10 | 0·85 | 0·31 | 23·0 | 2·0 | 5·30 | 1·01 | 56·9 | 1·1 |
| 20 | 1·16 | 0·30 | 25·0 | 2·1 | 6·31 | 0·98 | 58·0 | 1·6 |
| 30 | 1·46 | 0·30 | 27·1 | 2·0 | 7·29 | 0·92 | 45 59·6 | 2·1 |
| July 10 | 1·76 | 0·27 | 29·1 | 2·0 | 8·21 | 0·83 | 46 1·7 | 2·5 |
| 20 | 2·03 | 0·24 | 31·1 | 1·8 | 9·04 | 0·73 | 4·2 | 2·9 |
| 30 | 2·27 | 0·22 | 32·9 | 1·7 | 9·77 | 0·61 | 7·1 | 3·2 |
| Aug. 9 | 2·49 | 0·17 | 34·6 | 1·5 | 10·38 | 0·49 | 10·3 | 3·4 |
| 19 | 2·66 | 0·14 | 36·1 | 1·3 | 10·87 | 0·35 | 13·7 | 3·7 |
| 29 | 2·80 | 0·10 | 37·4 | 1·1 | 11·22 | 0·21 | 17·4 | 3·7 |
| Sept. 8 | 2·90 | 0·05 | 38·5 | 0·8 | 11·43 | 0·07 | 21·1 | 3·7 |
| 18 | 2·95 | 0·02 | 39·3 | 0·6 | 11·50 | 0·07 | 24·8 | 3·7 |
| 28 | 2·97 | 0·01 | 39·9 | 0·4 | 11·43 | 0·21 | 28·5 | 3·6 |
| Oct. 8 | 2·96 | 0·04 | 40·3 | 0·1 | 11·22 | 0·34 | 32·1 | 3·3 |
| 18 | 2·92 | 0·07 | 40·4 | 0·0 | 10·88 | 0·46 | 35·4 | 3·0 |
| 28 | 2·85 | 0·09 | 40·4 | 0·3 | 10·42 | 0·57 | 38·4 | 2·7 |
| Nov. 7 | 2·76 | 0·11 | 40·1 | 0·3 | 9·85 | 0·67 | 41·1 | 2·2 |
| 17 | 2·65 | 0·11 | 39·8 | 0·6 | 9·18 | 0·75 | 43·3 | 1·7 |
| 27 | 2·54 | 0·11 | 39·2 | 0·6 | 8·43 | 0·81 | 45·0 | 1·2 |
| Dec. 7 | 2·43 | 0·12 | 38·6 | 0·7 | 7·62 | 0·85 | 46·2 | 0·5 |
| 17 | 2·31 | 0·12 | 37·9 | 0·8 | 6·77 | 0·86 | 46·7 | 0·1 |
| 27 | 2·19 | 0·11 | 37·1 | 0·9 | 5·91 | 0·84 | 46·6 | 0·7 |
| 37 | 32 2·08 | | 47 36·2 | | 33 5·07 | | 46 45·9 | |

## TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of Polar Stars, for the terms of Nutation involving 2 ☾.

| *Arg.* | | α Urs. Min. | | 51 Cephei. | | σ Octantis. | | δ Urs. Min. | | λ Urs. Min. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ☾ | | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. |
| ° | ° | s | ″ | s | ″ | s | ″ | s | ″ | s | ″ |
| 0 | 180 | — ·211 | + ·02 | + ·011 | + ·09 | — ·114 | — ·09 | — ·011 | — ·09 | — ·168 | — ·07 |
| 1 | 181 | ·213 | ·02 | ·007 | ·09 | ·129 | ·09 | ·008 | ·09 | ·161 | ·07 |
| 2 | 182 | ·215 | ·02 | + ·002 | ·09 | ·144 | ·09 | ·006 | ·09 | ·154 | ·08 |
| 3 | 183 | ·217 | ·02 | — ·002 | ·09 | ·157 | ·09 | ·003 | ·09 | ·147 | ·08 |
| 4 | 184 | ·218 | ·01 | ·007 | ·09 | ·172 | ·08 | — ·000 | ·09 | ·139 | ·08 |
| 5 | 185 | ·219 | ·01 | ·011 | ·09 | ·186 | ·08 | + ·003 | ·09 | ·131 | ·08 |
| 6 | 186 | ·220 | ·01 | ·016 | ·09 | ·200 | ·08 | ·005 | ·09 | ·123 | ·08 |
| 7 | 187 | ·221 | ·00 | ·020 | ·09 | ·214 | ·08 | ·008 | ·09 | ·116 | ·08 |
| 8 | 188 | ·221 | ·00 | ·025 | ·09 | ·227 | ·08 | ·011 | ·09 | ·107 | ·08 |
| 9 | 189 | ·221 | ·00 | ·030 | ·09 | ·239 | ·08 | ·014 | ·09 | ·100 | ·08 |
| 10 | 190 | ·220 | + ·00 | ·034 | ·09 | ·252 | ·08 | ·017 | ·09 | ·091 | ·08 |
| 11 | 191 | ·220 | — ·01 | ·038 | ·09 | ·265 | ·07 | ·019 | ·09 | ·083 | ·09 |
| 12 | 192 | ·219 | ·01 | ·042 | ·09 | ·277 | ·07 | ·022 | ·09 | ·074 | ·09 |
| 13 | 193 | ·218 | ·01 | ·046 | ·08 | ·288 | ·07 | ·024 | ·08 | ·065 | ·09 |
| 14 | 194 | ·216 | ·02 | ·050 | ·08 | ·300 | ·07 | ·027 | ·08 | ·056 | ·09 |
| 15 | 195 | ·215 | ·02 | ·055 | ·08 | ·311 | ·07 | ·029 | ·08 | ·047 | ·09 |
| 16 | 196 | ·213 | ·02 | ·059 | ·08 | ·322 | ·06 | ·032 | ·08 | ·039 | ·09 |
| 17 | 197 | ·211 | ·02 | ·063 | ·08 | ·332 | ·06 | ·035 | ·08 | ·030 | ·09 |
| 18 | 198 | ·209 | ·03 | ·066 | ·08 | ·341 | ·06 | ·037 | ·08 | ·021 | ·09 |
| 19 | 199 | ·206 | ·03 | ·070 | ·08 | ·351 | ·06 | ·039 | ·08 | ·012 | ·09 |
| 20 | 200 | ·204 | ·03 | ·074 | ·07 | ·360 | ·05 | ·042 | ·07 | — ·004 | ·09 |
| 21 | 201 | ·200 | ·03 | ·078 | ·07 | ·369 | ·05 | ·044 | ·07 | + ·005 | ·09 |
| 22 | 202 | ·197 | ·04 | ·081 | ·07 | ·377 | ·05 | ·046 | ·07 | ·014 | ·09 |
| 23 | 203 | ·194 | ·04 | ·084 | ·07 | ·384 | ·05 | ·048 | ·07 | ·023 | ·09 |
| 24 | 204 | ·189 | ·04 | ·088 | ·07 | ·391 | ·04 | ·051 | ·07 | ·033 | ·08 |
| 25 | 205 | ·186 | ·05 | ·091 | ·06 | ·398 | ·04 | ·053 | ·06 | ·042 | ·08 |
| 26 | 206 | ·181 | ·05 | ·094 | ·06 | ·404 | ·04 | ·055 | ·06 | ·051 | ·08 |
| 27 | 207 | ·177 | ·05 | ·097 | ·06 | ·410 | ·04 | ·057 | ·06 | ·059 | ·08 |
| 28 | 208 | ·172 | ·05 | ·100 | ·06 | ·416 | ·03 | ·059 | ·06 | ·068 | ·08 |
| 29 | 209 | ·167 | ·05 | ·103 | ·05 | ·420 | ·03 | ·061 | ·06 | ·076 | ·08 |
| 30 | 210 | ·161 | ·06 | ·106 | ·05 | ·424 | ·03 | ·063 | ·05 | ·085 | ·08 |
| 31 | 211 | ·156 | ·06 | ·108 | ·05 | ·428 | ·02 | ·064 | ·05 | ·093 | ·08 |
| 32 | 212 | ·151 | ·06 | ·110 | ·05 | ·431 | ·02 | ·065 | ·05 | ·101 | ·08 |
| 33 | 213 | ·145 | ·06 | ·113 | ·04 | ·433 | ·02 | ·067 | ·04 | ·110 | ·07 |
| 34 | 214 | ·139 | ·06 | ·115 | ·04 | ·436 | ·01 | ·068 | ·04 | ·118 | ·07 |
| 35 | 215 | ·133 | ·07 | ·117 | ·04 | ·437 | ·01 | ·069 | ·04 | ·126 | ·07 |
| 36 | 216 | ·127 | ·07 | ·119 | ·04 | ·438 | ·01 | ·071 | ·04 | ·133 | ·07 |
| 37 | 217 | ·120 | ·07 | ·120 | ·03 | ·438 | ·01 | ·072 | ·03 | ·141 | ·07 |
| 38 | 218 | ·114 | ·07 | ·121 | ·03 | ·439 | ·00 | ·073 | ·03 | ·148 | ·07 |
| 39 | 219 | ·108 | ·07 | ·123 | ·03 | ·439 | ·00 | ·074 | ·03 | ·156 | ·06 |
| 40 | 220 | ·101 | ·07 | ·124 | ·02 | ·438 | — ·00 | ·075 | ·02 | ·163 | ·06 |
| 41 | 221 | ·093 | ·07 | ·125 | ·02 | ·436 | + ·01 | ·076 | ·02 | ·170 | ·06 |
| 42 | 222 | ·087 | ·08 | ·126 | ·02 | ·434 | ·01 | ·077 | ·02 | ·176 | ·06 |
| 43 | 223 | ·080 | ·08 | ·127 | ·01 | ·431 | ·01 | ·077 | ·02 | ·183 | ·05 |
| 44 | 224 | ·072 | ·08 | ·128 | ·01 | ·428 | ·02 | ·078 | ·01 | ·189 | ·05 |
| 45 | 225 | — ·065 | — ·08 | — ·128 | + ·01 | — ·424 | + ·02 | + ·078 | — ·01 | + ·195 | — ·05 |

NOTE.—When the *Argument* is on the *right*-hand side of the Table, the sign of the correction must be changed.

## TABLE,

Showing the *Correction* to be applied to the *preceding* Apparent Places of Five Polar Stars, for the terms of Nutation involving 2 ☾.

| g. | α Urs. Min. | | 51 Cephei. | | σ Octantis. | | δ Urs. Min. | | λ Urs. Min. | | *Arg.* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | R. A. | Dec. | ☾ | |
| ° | s | ″ | s | ″ | s | ″ | s | ″ | s | ″ | ° | ° |
| 225 | — ·065 | — ·08 | — ·128 | + ·01 | — ·424 | + ·02 | + ·078 | — ·01 | + ·195 | — ·05 | 135 | 315 |
| 226 | ·058 | ·08 | ·128 | ·00 | ·420 | ·02 | ·078 | ·01 | ·201 | ·05 | 136 | 316 |
| 227 | ·050 | ·08 | ·129 | ·00 | ·415 | ·03 | ·079 | ·00 | ·207 | ·04 | 137 | 317 |
| 228 | ·043 | ·08 | ·129 | + ·00 | ·410 | ·03 | ·079 | ·00 | ·212 | ·04 | 138 | 318 |
| 229 | ·035 | ·08 | ·129 | — ·01 | ·404 | ·03 | ·079 | — ·00 | ·216 | ·04 | 139 | 319 |
| 230 | ·027 | ·08 | ·128 | ·01 | ·398 | ·03 | ·079 | + ·01 | ·221 | ·04 | 140 | 320 |
| 231 | ·020 | ·08 | ·127 | ·01 | ·391 | ·04 | ·079 | ·01 | ·226 | ·03 | 141 | 321 |
| 232 | ·012 | ·08 | ·127 | ·02 | ·383 | ·04 | ·079 | ·01 | ·230 | ·03 | 142 | 322 |
| 233 | — ·004 | ·08 | ·126 | ·02 | ·376 | ·04 | ·078 | ·02 | ·233 | ·03 | 143 | 323 |
| 234 | + ·003 | ·08 | ·125 | ·02 | ·368 | ·05 | ·078 | ·02 | ·237 | ·02 | 144 | 324 |
| 235 | ·011 | ·08 | ·124 | ·02 | ·359 | ·05 | ·077 | ·02 | ·240 | ·02 | 145 | 325 |
| 236 | ·019 | ·08 | ·123 | ·03 | ·350 | ·05 | ·076 | ·03 | ·243 | ·02 | 146 | 326 |
| 237 | ·027 | ·08 | ·121 | ·03 | ·341 | ·05 | ·075 | ·03 | ·246 | ·02 | 147 | 327 |
| 238 | ·035 | ·08 | ·120 | ·03 | ·331 | ·06 | ·075 | ·03 | ·249 | ·01 | 148 | 328 |
| 239 | ·042 | ·08 | ·118 | ·04 | ·320 | ·06 | ·074 | ·03 | ·251 | ·01 | 149 | 329 |
| 240 | ·049 | ·08 | ·116 | ·04 | ·310 | ·06 | ·073 | ·04 | ·253 | ·01 | 150 | 330 |
| 241 | ·057 | ·08 | ·115 | ·04 | ·300 | ·06 | ·072 | ·04 | ·254 | ·00 | 151 | 331 |
| 242 | ·064 | ·08 | ·112 | ·04 | ·288 | ·07 | ·071 | ·04 | ·256 | ·00 | 152 | 332 |
| 243 | ·071 | ·08 | ·110 | ·05 | ·276 | ·07 | ·069 | ·05 | ·257 | — ·00 | 153 | 333 |
| 244 | ·079 | ·08 | ·108 | ·05 | ·264 | ·07 | ·068 | ·05 | ·257 | + ·01 | 154 | 334 |
| 245 | ·086 | ·08 | ·105 | ·05 | ·252 | ·07 | ·067 | ·05 | ·257 | ·01 | 155 | 335 |
| 246 | ·093 | ·07 | ·102 | ·06 | ·239 | ·07 | ·065 | ·05 | ·257 | ·01 | 156 | 336 |
| 247 | ·100 | ·07 | ·100 | ·06 | ·226 | ·07 | ·064 | ·06 | ·257 | ·02 | 157 | 337 |
| 248 | ·107 | ·07 | ·097 | ·06 | ·213 | ·08 | ·062 | ·06 | ·256 | ·02 | 158 | 338 |
| 249 | ·114 | ·07 | ·094 | ·06 | ·199 | ·08 | ·060 | ·06 | ·255 | ·02 | 159 | 339 |
| 250 | ·120 | ·07 | ·090 | ·06 | ·186 | ·08 | ·058 | ·06 | ·254 | ·02 | 160 | 340 |
| 251 | ·126 | ·07 | ·088 | ·07 | ·172 | ·08 | ·057 | ·06 | ·252 | ·03 | 161 | 341 |
| 252 | ·133 | ·07 | ·084 | ·07 | ·157 | ·08 | ·055 | ·07 | ·251 | ·03 | 162 | 342 |
| 253 | ·139 | ·06 | ·081 | ·07 | ·142 | ·08 | ·053 | ·07 | ·248 | ·03 | 163 | 343 |
| 254 | ·145 | ·06 | ·077 | ·07 | ·128 | ·08 | ·051 | ·07 | ·245 | ·04 | 164 | 344 |
| 255 | ·151 | ·06 | ·074 | ·07 | ·112 | ·09 | ·049 | ·07 | ·243 | ·04 | 165 | 345 |
| 256 | ·156 | ·06 | ·070 | ·08 | ·098 | ·09 | ·047 | ·08 | ·240 | ·04 | 166 | 346 |
| 257 | ·162 | ·06 | ·066 | ·08 | ·084 | ·09 | ·044 | ·08 | ·236 | ·04 | 167 | 347 |
| 258 | ·167 | ·05 | ·062 | ·08 | ·069 | ·09 | ·042 | ·08 | ·232 | ·05 | 168 | 348 |
| 259 | ·172 | ·05 | ·058 | ·08 | ·053 | ·09 | ·039 | ·08 | ·229 | ·05 | 169 | 349 |
| 260 | ·176 | ·05 | ·054 | ·08 | ·038 | ·09 | ·037 | ·08 | ·225 | ·05 | 170 | 350 |
| 261 | ·181 | ·05 | ·050 | ·08 | ·023 | ·09 | ·034 | ·08 | ·220 | ·05 | 171 | 351 |
| 262 | ·185 | ·04 | ·045 | ·08 | — ·007 | ·09 | ·032 | ·08 | ·215 | ·06 | 172 | 352 |
| 263 | ·189 | ·04 | ·042 | ·09 | + ·008 | ·09 | ·030 | ·08 | ·210 | ·06 | 173 | 353 |
| 264 | ·192 | ·04 | ·038 | ·09 | ·024 | ·09 | ·027 | ·09 | ·205 | ·06 | 174 | 354 |
| 265 | ·197 | ·04 | ·033 | ·09 | ·038 | ·09 | ·025 | ·09 | ·199 | ·06 | 175 | 355 |
| 266 | ·200 | ·03 | ·029 | ·09 | ·054 | ·09 | ·022 | ·09 | ·193 | ·06 | 176 | 356 |
| 267 | ·203 | ·03 | ·024 | ·09 | ·069 | ·09 | ·019 | ·09 | ·187 | ·07 | 177 | 357 |
| 268 | ·205 | ·03 | ·020 | ·09 | ·084 | ·09 | ·016 | ·09 | ·182 | ·07 | 178 | 358 |
| 269 | ·209 | ·03 | ·015 | ·09 | ·099 | ·09 | ·014 | ·09 | ·175 | ·07 | 179 | 359 |
| 270 | + ·211 | — ·02 | — ·011 | — ·09 | + ·114 | + ·09 | + ·011 | + ·09 | + ·168 | + ·07 | 180 | 360 |

NOTE.—When the *Argument* is on the *right*-hand side of the Table, the sign of the correction must be changed.

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Jan. 1 | $q$ Virginis - | 5.6 | 12 25 48 ·10 | | | S. 8 35 | |
| | $\psi$ Virginis - | 5.6 | 12 46 19 ·07 | | | 8 41 | |
| | Moon II. L. | - - | 12 41 1 ·85 | 132 ·96 | 66 ·23 | 8 44 16 ·9 | −713 |
| | Moon II. U. | 23 ·5 | 13 8 0 ·91 | 136 ·98 | 67 ·26 | 11 4 16 ·2 | 684 |
| | $\alpha$ Virginis - | 1 | 13 17 2 ·95 | | | 10 21 | |
| | $x$ Virginis - | 5.6 | 13 41 28 ·15 | | | S. 17 21 | |
| 2 | $\alpha$ Virginis - | 1 | 13 17 2 ·98 | | | S. 10 21 | |
| | $x$ Virginis - | 5.6 | 13 41 28 ·18 | | | 17 21 | |
| | Moon II. L. | - - | 13 35 51 ·48 | 141 ·52 | 68 ·39 | 13 17 8 ·7 | −642 |
| | Moon II. U. | 24 ·5 | 14 4 38 ·99 | 146 ·45 | 69 ·61 | 15 20 21 ·7 | 587 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 19 ·29 | | | 15 24 | |
| | 20 Libræ - - | 3.4 | 14 55 1 ·46 | | | S. 24 40 | |
| 3 | $\alpha^2$ Libræ - - | 3 | 14 42 19 ·32 | | | S. 15 24 | |
| | 20 Libræ - - | 3.4 | 14 55 1 ·49 | | | 24 40 | |
| | Moon II. L. | - - | 14 34 27 ·01 | 151 ·57 | 70 ·83 | 17 11 8 ·2 | −517 |
| | Moon II. U. | 25 ·5 | 15 5 16 ·37 | 156 ·62 | 72 ·02 | 18 46 33 ·6 | 433 |
| | $\eta$ Libræ - - | 4.5 | 15 35 22 ·07 | | | 15 10 | |
| | $\beta^1$ Scorpii - - | 2 | 15 56 26 ·09 | | | S. 19 23 | |
| 4 | Moon II. L. | - - | 15 37 4 ·19 | 161 ·26 | 73 ·10 | S. 20 3 43 ·1 | −335 |
| | Moon II. U. | 26 ·6 | 16 9 43 ·54 | 165 ·14 | 73 ·99 | 20 59 53 ·3 | 224 |
| 5 | Moon II. L. | - - | 16 43 3 ·12 | 167 ·91 | 74 ·60 | S. 21 32 44 ·9 | −103 |
| | Moon II. U. | 27 ·6 | 17 16 47 ·84 | 169 ·29 | 74 ·89 | 21 40 41 ·8 | + 24 |
| 6 | Moon II. L. | - - | 17 50 40 ·17 | 169 ·16 | 74 ·84 | S. 21 23 0 ·0 | +152 |
| | Moon II. U. | 28 ·7 | 18 24 21 ·86 | 167 ·54 | 74 ·45 | 20 39 56 ·6 | 276 |
| 7 | Moon II. L. | - - | 18 57 35 ·93 | 164 ·61 | 73 ·76 | S. 19 32 49 ·4 | +392 |
| 8 | Moon I. U. | 0 ·2 | 19 27 42 ·72 | 160 ·83 | 72 ·83 | S. 18 3 48 ·8 | +493 |
| | Moon I. L. | - - | 19 59 25 ·68 | 156 ·25 | 71 ·75 | 16 15 45 ·1 | 582 |
| 9 | Moon I. U. | 1 ·3 | 20 30 11 ·49 | 151 ·36 | 70 ·58 | S. 14 11 52 ·5 | +653 |
| | Moon I. L. | - - | 20 59 58 ·26 | 146 ·46 | 69 ·40 | 11 55 33 ·6 | 707 |
| 10 | Moon I. U. | 2 ·3 | 21 28 47 ·44 | 141 ·80 | 68 ·26 | S. 9 30 8 ·1 | +744 |
| | Moon I. L. | - - | 21 56 43 ·03 | 137 ·55 | 67 ·23 | 6 58 42 ·7 | 767 |
| 11 | Moon I. U. | 3 ·3 | 22 23 50 ·74 | 133 ·83 | 66 ·30 | S. 4 24 7 ·1 | +776 |
| | Moon I. L. | - - | 22 50 17 ·24 | 130 ·69 | 65 ·52 | 1 48 50 ·9 | 774 |
| 12 | $\lambda$ Aquarii - | 4 | 22 44 31 ·76 | | | S. 8 24 | |
| | $\beta$ Piscium - | 5 | 22 55 59 ·68 | | | N. 2 59 | |
| | Moon I. U. | 4 ·4 | 23 16 9 ·73 | 128 ·16 | 64 ·89 | 0 44 54 ·8 | +761 |
| | Moon I. L. | - - | 23 41 35 ·54 | 126 ·24 | 64 ·41 | 3 15 18 ·0 | +740 |
| | $\iota$ Piscium * | 4.5 | 23 31 59 ·16 | | | 4 47 | |
| | $\omega$ Piscium * | 4.5 | 23 51 21 ·73 | | | N. 6 0 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
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| 845. | | | h m s | s | s | ° ′ ″ | ″ |
| n. 13 | ι Piscium * | 4.5 | 23 31 59 ·15 | | | N. 4 47 | |
| | ω Piscium * | 4.5 | 23 51 21 ·72 | | | 6 0 | |
| | Moon I. U. | 5 ·4 | 0 6 41 ·79 | 124 ·90 | 64 ·08 | 5 40 41 ·1 | +712 ·0 |
| | Moon I. L. | - - | 0 31 35 ·19 | 124 ·09 | 63 ·88 | 7 59 40 ·5 | 676 ·8 |
| | δ Piscium * | 5 | 0 40 39 ·57 | | | N. 6 44 | |
| 14 | δ Piscium * | 5 | 0 40 39 ·56 | | | N. 6 44 | |
| | Moon I. U. | 6 ·4 | 0 56 21 ·97 | 123 ·78 | 63 ·81 | 10 11 1 ·5 | +635 ·8 |
| | Moon I. L. | - - | 1 21 7 ·70 | 123 ·91 | 63 ·85 | 12 13 37 ·6 | 589 ·4 |
| | η Piscium - | 4 | 1 23 13 ·05 | | | N.14 33 | |
| 15 | η Piscium - | 4 | 1 23 13 ·03 | | | N.14 33 | |
| | Moon I. U. | 7 ·5 | 1 45 57 ·24 | 124 ·40 | 63 ·98 | 14 6 28 ·5 | +538 ·3 |
| | Moon I. L. | - - | 2 10 54 ·48 | 125 ·18 | 64 ·19 | 15 48 37 ·8 | 482 ·6 |
| | θ¹ Arietis - - | 6 | 2 9 32 ·44 | | | 19 11 | |
| | ψ Arietis - - | 6 | 2 22 20 ·29 | | | N.17 1 | |
| 16 | θ¹ Arietis - - | 6 | 2 9 32 ·42 | | | N.19 11 | |
| | ψ Arietis - - | 6 | 2 22 20 ·28 | | | 17 1 | |
| | Moon I. U. | 8 ·5 | 2 36 2 ·52 | 126 ·18 | 64 ·44 | 17 19 12 ·5 | +422 ·5 |
| | Moon I. L. | - - | 3 1 23 ·33 | 127 ·30 | 64 ·72 | 18 37 22 ·6 | 358 ·5 |
| | ε Arietis - - | 5 | 2 50 23 ·33 | | | 20 43 | |
| | δ Arietis - - | 4 | 3 2 48 ·14 | | | N.19 8 | |
| 17 | ε Arietis - - | 5 | 2 50 23 ·32 | | | N.20 43 | |
| | δ Arietis - - | 4 | 3 2 48 ·13 | | | 19 8 | |
| | Moon I. U. | 9 ·5 | 3 26 57 ·87 | 128 ·45 | 64 ·99 | 19 42 22 ·6 | +290 ·9 |
| | Moon I. L. | - - | 3 52 45 ·91 | 129 ·54 | 65 ·25 | 20 33 30 ·0 | 219 ·9 |
| | η Tauri - - | 3 | 3 38 18 ·93 | | | 23 37 | |
| | A¹ Tauri - - | 5 | 3 55 34 ·39 | | | N.21 39 | |
| 18 | η Tauri - - | 3 | 3 38 18 ·90 | | | N.23 37 | |
| | A¹ Tauri - - | 5 | 3 55 34 ·38 | | | 21 39 | |
| | Moon I. U. | 10 ·6 | 4 18 46 ·20 | 130 ·48 | 65 ·45 | 21 10 8 ·5 | +146 ·2 |
| | Moon I. L. | - - | 4 44 56 ·47 | 131 ·19 | 65 ·61 | 21 31 49 ·4 | + 70 ·3 |
| | τ Tauri - - | 5 | 4 32 59 ·18 | | | 22 39 | |
| | ι Tauri - - | 4.5 | 4 53 52 ·48 | | | N.21 22 | |
| 19 | τ Tauri - - | 5 | 4 32 59 ·17 | | | N.22 39 | |
| | ι Tauri - - | 4.5 | 4 53 52 ·47 | | | 21 22 | |
| | Moon I. U. | 11 ·6 | 5 11 13 ·62 | 131 ·62 | 65 ·67 | 21 38 11 ·5 | — 6 ·8 |
| | Moon I. L. | - - | 5 37 34 ·01 | 131 ·72 | 65 ·66 | 21 29 4 ·6 | 84 ·3 |
| | ζ Tauri - - | 3.4 | 5 28 25 ·51 | | | 21 3 | |
| | C Tauri - - | 4.5 | 5 43 37 ·90 | | | N.27 34 | |
| 20 | ζ Tauri - - | 3.4 | 5 28 25 ·50 | | | N.21 3 | |
| | C Tauri - - | 4.5 | 5 43 37 ·89 | | | 27 34 | |
| | Moon I. U. | 12 ·6 | 6 3 53 ·70 | 131 ·50 | 65 ·57 | 21 4 29 ·6 | —161 ·3 |
| | Moon I. L. | - - | 6 30 8 ·78 | 130 ·96 | 65 ·39 | 20 24 39 ·4 | —236 ·7 |
| | μ Geminor. | 3 | 6 13 37 ·67 | | | N.22 35 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Jan. 20 | γ Geminor. | 3 | 6 28 47 ·91 | | | N.16 32 | |
| 21 | μ Geminor. | 3 | 6 13 37 ·67 | | | N.22 35 | |
| | γ Geminor. | 3 | 6 28 47 ·91 | | | 16 32 | |
| | Moon I. U. | 13 ·7 | 6 56 15 ·68 | 130 ·15 | 65 ·15 | 19 29 59 ·5 | —309 |
| | Moon I. L. | - - | 7 22 11 ·47 | 129 ·12 | 64 ·86 | 18 21 6 ·7 | 378 |
| | δ Geminor. | 3.4 | 7 10 54 ·45 | | | 22 16 | |
| | k Geminor. | 5 | 7 24 48 ·09 | | | N.16 9 | |
| 22 | δ Geminor. | 3.4 | 7 10 54 ·45 | | | N.22 16 | |
| | k Geminor. | 5 | 7 24 48 ·10 | | | 16 9 | |
| | Moon I. U. | 14 ·7 | 7 47 54 ·08 | 127 ·96 | 64 ·55 | 16 58 49 ·0 | —443 |
| | ζ Cancri - - | 6 | 8 3 21 ·41 | | | 18 7 | |
| | θ Cancri - - | 5.6 | 8 22 47 ·80 | | | N.18 37 | |
| 23 | ζ Cancri - - | 6 | 8 3 21 ·42 | | | N.18 7 | |
| | θ Cancri - - | 5.6 | 8 22 47 ·81 | | | 18 37 | |
| | Moon I. L. | - - | 8 13 22 ·39 | 126 ·76 | 64 ·23 | 15 24 3 ·3 | —503 |
| | Moon II. U. | 15 ·7 | 8 40 44 ·34 | 125 ·56 | 63 ·93 | 13 37 55 ·8 | 557 |
| | κ Cancri * | 5.6 | 8 59 23 ·31 | | | 11 17 | |
| | ξ Leonis * | 5 | 9 23 37 ·81 | | | N.11 59 | |
| 24 | κ Cancri * | 5.6 | 8 59 23 ·32 | | | N.11 17 | |
| | ξ Leonis * | 5 | 9 23 37 ·82 | | | 11 59 | |
| | Moon II. L. | - - | 9 5 44 ·73 | 124 ·54 | 63 ·67 | 11 41 39 ·0 | —604 |
| | Moon II. U. | 16 ·8 | 9 30 34 ·17 | 123 ·75 | 63 ·48 | 9 36 30 ·9 | 645 |
| | π Leonis * | 4.5 | 9 52 3 ·65 | | | 8 47 | |
| | α Leonis * | 1 | 10 0 9 ·25 | | | N.12 43 | |
| 25 | π Leonis * | 4.5 | 9 52 3 ·67 | | | N. 8 47 | |
| | α Leonis * | 1 | 10 0 9 ·27 | | | 12 43 | |
| | Moon II. L. | - - | 9 55 15 ·85 | 123 ·25 | 63 ·37 | 7 23 54 ·0 | —679 |
| | Moon II. U. | 17 ·8 | 10 19 53 ·71 | 123 ·12 | 63 ·36 | 5 5 14 ·6 | 705 |
| | 34 Sextantis * | 6 | 10 34 38 ·01 | | | 4 24 | |
| | d Leonis * | 5 | 10 52 35 ·54 | | | N. 4 27 | |
| 26 | 34 Sextantis * | 6 | 10 34 38 ·03 | | | N. 4 24 | |
| | d Leonis * | 5 | 10 52 35 ·56 | | | 4 27 | |
| | Moon II. L. | - - | 10 44 32 ·52 | 123 ·42 | 63 ·47 | 2 42 2 ·4 | —724 |
| | Moon II. U. | 18 ·8 | 11 9 17 ·61 | 124 ·18 | 63 ·71 | 0 15 51 ·0 | 735 |
| | ν Leonis - | 4.5 | 11 29 2 ·95 | | | 0 2 | |
| | β Virginis - | 3.4 | 11 42 39 ·58 | | | N. 2 38 | |
| 27 | ν Leonis - | 4.5 | 11 29 2 ·97 | | | N. 0 2 | |
| | β Virginis - | 3.4 | 11 42 39 ·60 | | | N. 2 38 | |
| | Moon II. L. | - - | 11 34 14 ·90 | 125 ·45 | 64 ·08 | S. 2 11 42 ·9 | —738 |
| | Moon II. U. | 19 ·8 | 11 59 30 ·63 | 127 ·26 | 64 ·59 | S. 4 38 57 ·2 | —732 |
| | η Virginis - | 3.4 | 12 12 0 ·52 | | | N. 0 12 | |
| | γ¹ Virginis - | 4 | 12 33 50 ·13 | | | S. 0 36 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Jan. 28 | η Virginis - | 3.4 | 12 12 0 ·54 | | | N. 0 12 | |
| | γ¹ Virginis - | 4 | 12 33 50 ·16 | | | S. 0 36 | |
| | Moon II. L. | - - | 12 25 11 ·24 | 129 ·60 | 65 ·23 | 7 4 4 ·4 | —717 ·2 |
| | Moon II. U. | 20 ·9 | 12 51 23 ·13 | 132 ·47 | 66 ·00 | 9 25 10 ·4 | 692 ·1 |
| | α Virginis - | 1 | 13 17 3 ·81 | | | 10 21 | |
| | m Virginis - | 5.6 | 13 33 30 ·90 | | | S. 7 55 | |
| 29 | α Virginis - | 1 | 13 17 3 ·84 | | | S. 10 21 | |
| | m Virginis - | 5.6 | 13 33 30 ·92 | | | 7 55 | |
| | Moon II. L. | - - | 13 18 12 ·42 | 135 ·83 | 66 ·88 | 11 40 13 ·7 | —656 ·6 |
| | Moon II. U. | 21 ·9 | 13 45 44 ·62 | 139 ·61 | 67 ·86 | 13 47 4 ·6 | 610 ·0 |
| | κ Virginis - | 4 | 14 4 39 ·66 | | | 9 33 | |
| | λ Virginis - | 4 | 14 10 45 ·58 | | | S. 12 39 | |
| 30 | κ Virginis - | 4 | 14 4 39 ·69 | | | S. 9 33 | |
| | λ Virginis - | 4 | 14 10 45 ·61 | | | 12 39 | |
| | Moon II. L. | - - | 14 14 4 ·11 | 143 ·68 | 68 ·90 | 15 43 25 ·8 | —551 ·6 |
| | Moon II. U. | 23 ·0 | 14 43 13 ·53 | 147 ·90 | 69 ·96 | 17 26 54 ·6 | 481 ·2 |
| | ι¹ Libræ - - | 5.6 | 15 3 25 ·14 | | | 19 12 | |
| | γ¹ Libræ - - | 4.5 | 15 26 52 ·88 | | | S. 14 16 | |
| 31 | ι¹ Libræ - - | 5.6 | 15 3 25 ·17 | | | S. 19 12 | |
| | γ¹ Libræ - - | 4.5 | 15 26 52 ·91 | | | 14 16 | |
| | Moon II. L. | - - | 15 13 13 ·47 | 152 ·06 | 70 ·97 | 18 55 5 ·8 | —398 ·7 |
| | Moon II. U. | 24 ·0 | 15 44 1 ·74 | 155 ·91 | 71 ·88 | 20 5 36 ·9 | 304 ·7 |
| | β¹ Scorpii- - | 2 | 15 56 26 ·96 | | | 19 22 | |
| | α Scorpii- - | 1 | 16 19 55 ·76 | | | S. 26 5 | |
| Feb. 1 | β¹ Scorpii- - | 2 | 15 56 26 ·99 | | | S. 19 22 | |
| | α Scorpii- - | 1 | 16 19 55 ·79 | | | 26 5 | |
| | Moon II. L. | - - | 16 15 33 ·01 | 159 ·18 | 72 ·66 | 20 56 18 ·1 | —200 ·5 |
| | Moon II. U. | 25 ·0 | 16 47 38 ·86 | 161 ·63 | 73 ·22 | 21 25 18 ·2 | — 88 ·3 |
| | η Ophiuchi - | 2.3 | 17 1 30 ·27 | | | 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 30 ·33 | | | S. 24 50 | |
| 2 | Moon II. L. | - - | 17 20 8 ·00 | 163 ·04 | 73 ·53 | S. 21 31 17 ·8 | + 29 ·0 |
| | Moon II. U. | 26 ·1 | 17 52 47 ·23 | 163 ·30 | 73 ·56 | 21 13 37 ·3 | 147 ·8 |
| 3 | Moon II. L. | - - | 18 25 22 ·60 | 162 ·40 | 73 ·32 | S. 20 32 21 ·1 | +264 ·2 |
| | Moon II. U. | 27 ·1 | 18 57 40 ·69 | 160 ·45 | 72 ·83 | 19 28 21 ·7 | 374 ·3 |
| 4 | Moon II. L. | - - | 19 29 29 ·90 | 157 ·63 | 72 ·12 | S. 18 3 15 ·9 | +474 ·7 |
| | Moon II. U. | 28 ·2 | 20 0 41 ·35 | 154 ·20 | 71 ·27 | 16 19 16 ·8 | 562 ·8 |
| 5 | Moon II. L. | - - | 20 31 9 ·25 | 150 ·41 | 70 ·34 | S. 14 19 5 ·1 | +636 ·6 |
| | Moon II. U. | 29 ·2 | 21 0 50 ·85 | 146 ·52 | 69 ·37 | 12 5 38 ·1 | 695 ·3 |
| 6 | Moon I. L. | - - | 21 27 29 ·37 | 142 ·89 | 68 ·42 | S. 9 41 59 ·5 | +738 ·6 |
| 7 | Moon I. U. | 0 ·7 | 21 55 42 ·50 | 139 ·35 | 67 ·53 | S. 7 11 11 ·0 | +767 ·0 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Feb. 7 | Moon I. L. | - - | 22 23 15 ·31 | 136 ·18 | 66 ·74 | S. 4 36 6 ·4 | +781 |
| 8 | Moon I. U. | 1 ·8 | 22 50 12 ·70 | 133 ·46 | 66 ·06 | S. 1 59 26 ·4 | +783 |
| | Moon I. L. | - - | 23 16 40 ·27 | 131 ·22 | 65 ·49 | N. 0 36 23 ·2 | 773 |
| 9 | Moon I. U. | 2 ·8 | 23 42 43 ·81 | 129 ·46 | 65 ·06 | N. 3 9 11 ·4 | +753 |
| | Moon I. L. | - - | 0 8 29 ·16 | 128 ·18 | 64 ·75 | 5 37 4 ·0 | 724 |
| 10 | Moon I. U. | 3 ·8 | 0 34 1 ·83 | 127 ·34 | 64 ·56 | N. 7 58 20 ·3 | +687 |
| | Moon I. L. | - - | 0 59 26 ·99 | 126 ·92 | 64 ·48 | 10 11 32 ·5 | 643 |
| 11 | ε Piscium * | 4 | 0 54 54 ·97 | | | N. 7 3 | |
| | Moon I. U. | 4 ·9 | 1 24 49 ·27 | 126 ·85 | 64 ·48 | 12 15 24 ·1 | +594 |
| | Moon I. L. | - - | 1 50 12 ·55 | 127 ·08 | 64 ·57 | 14 8 48 ·1 | 539 |
| | β Arietis - | 3 | 1 46 6 ·21 | | | N.20 3 | |
| 12 | β Arietis - - | 3 | 1 46 6 ·20 | | | N.20 3 | |
| | Moon I. U. | 5 ·9 | 2 15 40 ·02 | 127 ·54 | 64 ·72 | 15 50 45 ·7 | +479 |
| | Moon I. L. | - - | 2 41 14 ·06 | 128 ·16 | 64 ·90 | 17 20 25 ·3 | 416 |
| | π Arietis - - | 5 | 2 40 40 ·43 | | | 16 49 | |
| | ε Arietis - | 5 | 2 50 22 ·92 | | | N.20 43 | |
| 13 | π Arietis - - | 5 | 2 40 40 ·42 | | | N.16 49 | |
| | ε Arietis - - | 5 | 2 50 22 ·91 | | | 20 43 | |
| | Moon I. U. | 6 ·9 | 3 6 56 ·17 | 128 ·87 | 65 ·10 | 18 37 1 ·1 | +349 |
| | Moon I. L. | - - | 3 32 46 ·98 | 129 ·59 | 65 ·30 | 19 39 54 ·0 | 279 |
| | g Arietis - - | 5.6 | 3 15 11 ·32 | | | 24 10 | |
| | η Tauri - - | 3 | 3 38 18 ·53 | | | N.23 37 | |
| 14 | g Arietis - - | 5.6 | 3 15 11 ·30 | | | N.24 10 | |
| | η Tauri - - | 3 | 3 38 18 ·51 | | | 23 37 | |
| | Moon I. U. | 8 ·0 | 3 58 46 ·13 | 130 ·25 | 65 ·47 | 20 28 30 ·7 | +20 |
| | Moon I. L. | - - | 4 24 52 ·56 | 130 ·79 | 65 ·60 | 21 2 24 ·3 | 13 |
| | γ Tauri - - | 3.4 | 4 11 0 ·29 | | | 15 15 | |
| | α Tauri - - | 1 | 4 27 3 ·84 | | | N.16 12 | |
| 15 | γ Tauri - - | 3.4 | 4 11 0 ·27 | | | N.15 15 | |
| | α Tauri - - | 1 | 4 27 3 ·82 | | | 16 12 | |
| | Moon I. U. | 9 ·0 | 4 51 4 ·43 | 131 ·15 | 65 ·69 | 21 21 15 ·1 | + 3 |
| | Moon I. L. | - - | 5 17 19 ·42 | 131 ·30 | 65 ·71 | 21 24 51 ·0 | — 2 |
| | β Tauri - - | 2 | 5 16 32 ·20 | | | 28 28 | |
| | ζ Tauri - - | 3.4 | 5 28 25 ·22 | | | N.21 3 | |
| 16 | β Tauri - - | 2 | 5 16 32 ·18 | | | N.28 28 | |
| | ζ Tauri - - | 3.4 | 5 28 25 ·21 | | | 21 3 | |
| | Moon I. U. | 10 ·0 | 5 43 34 ·81 | 131 ·22 | 65 ·66 | 21 13 8 ·8 | — 9 |
| | Moon I. L. | - - | 6 9 47 ·80 | 130 ·91 | 65 ·55 | 20 46 13 ·8 | —17 |
| | μ Geminor. | 3 | 6 13 37 ·46 | | | 22 35 | |
| | γ Geminor. | 3 | 6 28 47 ·74 | | | N.16 32 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
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| 845. | | | h m s | s | s | ° ′ ″ | ″ |
| Feb.17 | μ Geminor. | 3 | 6 13 37 ·45 | | | N.22 35 | |
| | γ Geminor. | 3 | 6 28 47 ·73 | | | 16 32 | |
| | Moon I. U. | 11 ·1 | 6 35 55 ·73 | 130 ·38 | 65 ·38 | 20 4 20 ·9 | —246 ·2 |
| | Moon I. L. | - - | 7 1 56 ·27 | 129 ·68 | 65 ·16 | 19 7 54 ·4 | 317 ·8 |
| | ζ Geminor. | 4 | 6 54 57 ·42 | | | 20 48 | |
| | δ Geminor. | 3.4 | 7 10 54 ·36 | | | N.22 16 | |
| 18 | ζ Geminor. | 4 | 6 54 57 ·41 | | | N.20 48 | |
| | δ Geminor. | 3.4 | 7 10 54 ·36 | | | 22 16 | |
| | Moon I. U. | 12 ·1 | 7 27 47 ·66 | 128 ·87 | 64 ·91 | 17 57 27 ·4 | —386 ·1 |
| | Moon I. L. | - - | 7 53 28 ·84 | 127 ·99 | 64 ·64 | 16 33 43 ·8 | 450 ·5 |
| | ζ Cancri - - | 6 | 8 3 21 ·44 | | | N.18 7 | |
| 19 | ζ Cancri - - | 6 | 8 3 21 ·44 | | | N.18 7 | |
| | Moon I. U. | 13 ·1 | 8 18 59 ·56 | 127 ·13 | 64 ·38 | 14 57 34 ·3 | —510 ·3 |
| | Moon I. L. | - - | 8 44 20 ·41 | 126 ·36 | 64 ·15 | 13 9 59 ·2 | 564 ·7 |
| | δ Cancri - - | 4.5 | 8 35 54 ·96 | | | 18 43 | |
| | $\alpha^2$ Cancri * | 5 | 8 50 2 ·94 | | | N.12 27 | |
| 20 | δ Cancri - - | 4.5 | 8 35 54 ·96 | | | N.18 43 | |
| | $\alpha^2$ Cancri * | 5 | 8 50 2 ·94 | | | 12 27 | |
| | Moon I. U. | 14 ·2 | 9 9 32 ·83 | 125 ·74 | 63 ·95 | 11 12 6 ·5 | —613 ·1 |
| | Moon I. L. | - - | 9 34 39 ·07 | 125 ·34 | 63 ·83 | 9 5 12 ·0 | 654 ·9 |
| | ξ Leonis * | 5 | 9 23 38 ·04 | | | 11 59 | |
| | o Leonis * | 4 | 9 32 55 ·30 | | | N.10 36 | |
| 21 | ξ Leonis * | 5 | 9 23 38 ·04 | | | N.11 59 | |
| | o Leonis * | 4 | 9 32 55 ·31 | | | 10 36 | |
| | Moon I. U. | 15 ·2 | 9 59 42 ·18 | 125 ·23 | 63 ·78 | 6 50 38 ·0 | —689 ·5 |
| | ρ Leonis * | 4 | 10 24 41 ·47 | | | 10 6 | |
| | 34 Sextantis * | 6 | 10 34 38 ·39 | | | N. 4 24 | |
| 22 | ρ Leonis * | 4 | 10 24 41 ·48 | | | N.10 6 | |
| | 34 Sextantis * | 6 | 10 34 38 ·40 | | | 4 24 | |
| | Moon II. L. | - - | 10 26 53 ·51 | 125 ·46 | 63 ·84 | 4 29 54 ·8 | —716 ·3 |
| | Moon II. U. | 16 ·2 | 10 52 2 ·33 | 126 ·08 | 64 ·00 | 2 4 39 ·0 | 734 ·9 |
| | r Leonis - | 5.6 | 11 16 7 ·74 | | | 2 15 | |
| | v Leonis - | 4.5 | 11 29 3 ·45 | | | N. 0 2 | |
| 23 | r Leonis - | 5.6 | 11 16 7 ·77 | | | N. 2 15 | |
| | v Leonis - | 4.5 | 11 29 3 ·46 | | | N. 0 2 | |
| | Moon II. L. | - - | 11 17 20 ·99 | 127 ·10 | 64 ·28 | S. 0 23 26 ·0 | —744 ·5 |
| | Moon II. U. | 17 ·3 | 11 42 54 ·57 | 128 ·57 | 64 ·68 | S. 2 52 30 ·0 | 744 ·6 |
| | η Virginis - | 3.4 | 12 12 1 ·10 | | | N. 0 12 | |
| 24 | η Virginis - | 3.4 | 12 12 1 ·12 | | | N. 0 12 | |
| | Moon II. L. | - - | 12 8 48 ·37 | 130 ·47 | 65 ·20 | S. 5 20 36 ·6 | —734 ·8 |
| | Moon II. U. | 18 ·3 | 12 35 7 ·60 | 132 ·81 | 65 ·83 | 7 45 43 ·3 | —714 ·5 |
| | θ Virginis - | 4.5 | 13 1 58 ·40 | | | 4 43 | |
| | α Virginis - | 1 | 13 17 4 ·51 | | | S. 10 21 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s De in 1 ho of Lon |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Feb. 25 | θ Virginis - | 4.5 | 13 1 58 ·42 | | | S. 4 43 | |
| | α Virginis - | 1 | 13 17 4 ·53 | | | 10 21 | |
| | Moon II. L. | - - | 13 1 57 ·26 | 135 ·53 | 66 ·56 | 10 5 41 ·5 | —683 |
| | Moon II. U. | 19 ·3 | 13 29 21 ·74 | 138 ·60 | 67 ·37 | 12 18 17 ·9 | 640 |
| | κ Virginis - | 4 | 14 4 40 ·43 | | | 9 33 | |
| | λ Virginis - | 4 | 14 10 46 ·37 | | | S. 12 39 | |
| 26 | κ Virginis - | 4 | 14 4 40 ·46 | | | S. 9 33 | |
| | λ Virginis - | 4 | 14 10 46 ·39 | | | 12 39 | |
| | Moon II. L. | - - | 13 57 24 ·63 | 141 ·91 | 68 ·24 | 14 21 16 ·4 | —586 |
| | Moon II. U. | 20 ·4 | 14 26 7 ·97 | 145 ·33 | 69 ·12 | 16 12 17 ·9 | 521 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 21 ·02 | | | 15 24 | |
| | $\iota^1$ Libræ - - | 5.6 | 15 3 25 ·99 | | | S. 19 12 | |
| 27 | $\alpha^2$ Libræ - - | 3 | 14 42 21 ·05 | | | S. 15 24 | |
| | $\iota^1$ Libræ - - | 5.6 | 15 3 26 ·02 | | | 19 12 | |
| | Moon II. L. | - - | 14 55 32 ·33 | 148 ·71 | 69 ·99 | 17 49 7 ·3 | —444 |
| | Moon II. U. | 21 ·4 | 15 25 36 ·07 | 151 ·86 | 70 ·78 | 19 9 34 ·6 | 358 |
| | $\beta^1$ Scorpii - - | 2 | 15 56 27 ·82 | | | 19 23 | |
| | ν Scorpii - - | 4 | 16 3 1 ·60 | | | S. 19 3 | |
| 28 | $\beta^1$ Scorpii - - | 2 | 15 56 27 ·85 | | | S. 19 23 | |
| | ν Scorpii - - | 4 | 16 3 1 ·63 | | | 19 3 | |
| | Moon II. L. | - - | 15 56 15 ·24 | 154 ·58 | 71 ·46 | 20 11 41 ·9 | —26 |
| | Moon II. U. | 22 ·4 | 16 27 23 ·46 | 156 ·67 | 71 ·98 | 20 53 49 ·8 | 15 |
| | η Ophiuchi - | 2.3 | 17 1 31 ·10 | | | 15 32 | |
| | ρ Ophiuchi - | 4.5 | 17 11 44 ·34 | | | S. 20 56 | |
| Mar. 1 | η Ophiuchi - | 2.3 | 17 1 31 ·13 | | | S. 15 32 | |
| | ρ Ophiuchi - | 4.5 | 17 11 44 ·37 | | | 20 56 | |
| | Moon II. L. | - - | 16 58 52 ·29 | 157 ·99 | 72 ·31 | 21 14 44 ·1 | — 5 |
| | Moon II. U. | 23 ·5 | 17 30 31 ·63 | 158 ·42 | 72 ·41 | 21 13 39 ·5 | + 6 |
| | 4 Sagittarii | 5 | 17 50 21 ·10 | | | 23 48 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 30 ·92 | | | S. 21 6 | |
| 2 | 4 Sagittarii | 5 | 17 50 21 ·13 | | | S. 23 48 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 30 ·95 | | | 21 6 | |
| | Moon II. L. | - - | 18 2 10 ·68 | 157 ·94 | 72 ·29 | 20 50 26 ·3 | +17 |
| | Moon II. U. | 24 ·5 | 18 33 38 ·79 | 156 ·61 | 71 ·97 | 20 5 30 ·8 | 27 |
| | π Sagittarii | 4.5 | 19 0 33 ·61 | | | 21 16 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 41 ·80 | | | S. 18 8 | |
| 3 | π Sagittarii | 4.5 | 19 0 33 ·64 | | | S. 21 16 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 41 ·82 | | | 18 8 | |
| | Moon II. L. | - - | 19 4 46 ·36 | 154 ·54 | 71 ·45 | 18 59 53 ·1 | +37 |
| | Moon II. U. | 25 ·6 | 19 35 25 ·65 | 151 ·93 | 70 ·80 | 17 35 5 ·3 | 46 |
| | $\alpha^2$ Capricorni | 3 | 20 9 27 ·57 | | | 13 1 | |
| | ρ Capricorni | 5 | 20 20 1 ·42 | | | S. 18 19 | |
| 4 | Moon II. L. | - - | 20 5 31 ·13 | 148 ·95 | 70 ·04 | S. 15 53 4 ·0 | +54 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Mar. 4 | Moon II. U. | 26·6 | 20 34 59·69 | 145·80 | 69·24 | S. 13 56 5·6 | +618·2 |
| 5 | Moon II. L. | - - | 21 3 50·42 | 142·67 | 68·43 | S. 11 46 38·5 | +674·1 |
| | Moon II. U. | 27·6 | 21 32 4·42 | 139·70 | 67·65 | 9 27 18·1 | 717·1 |
| 6 | Moon II. L. | - - | 21 59 44·25 | 137·00 | 66·93 | S. 7 0 40·2 | +747·0 |
| | Moon II. U. | 28·7 | 22 26 53·70 | 134·64 | 66·30 | 4 29 19·5 | 764·3 |
| 7 | Moon II. L. | - - | 22 53 37·16 | 132·67 | 65·78 | S. 1 55 44·2 | +769·6 |
| 8 | Moon I. U. | 0·2 | 23 17 48·77 | 131·18 | 65·36 | N. 0 37 45·1 | +763·5 |
| | Moon I. L. | - - | 23 43 55·47 | 130·01 | 65·06 | 3 8 57·6 | 746·9 |
| 9 | Moon I. U. | 1·2 | 0 9 50·51 | 129·23 | 64·86 | N. 5 35 51·8 | +720·6 |
| | Moon I. L. | - - | 0 35 38·34 | 128·80 | 64·76 | 7 56 37·6 | 685·6 |
| 10 | Moon I. U. | 2·3 | 1 1 22·93 | 128·68 | 64·75 | N. 10 9 35·7 | +642·8 |
| | Moon I. L. | - - | 1 27 7·68 | 128·82 | 64·81 | 12 13 17·0 | 593·0 |
| 11 | Moon I. U. | 3·3 | 1 52 55·27 | 129·14 | 64·92 | N. 14 6 23·8 | +537·2 |
| | Moon I. L. | - - | 2 18 47·62 | 129·60 | 65·07 | 15 47 47·7 | 476·0 |
| 12 | $\theta^1$ Arietis - - | 6 | 2 9 31·65 | | | N. 19 11 | |
| | $\nu$ Arietis - - | 5.6 | 2 30 2·00 | | | 21 17 | |
| | Moon I. U. | 4·3 | 2 44 45·86 | 130·11 | 65·23 | 17 16 30·8 | +410·5 |
| | Moon I. L. | - - | 3 10 50·24 | 130·61 | 65·40 | 18 31 44·3 | 341·3 |
| | $\delta$ Arietis - - | 4 | 3 2 47·29 | | | 19 8 | |
| | $g$ Arietis - - | 5.6 | 3 15 10·86 | | | N. 24 10 | |
| 13 | $\delta$ Arietis - - | 4 | 3 2 47·28 | | | N. 19 8 | |
| | $g$ Arietis - - | 5.6 | 3 15 10·85 | | | 24 10 | |
| | Moon I. U. | 5·4 | 3 37 0·33 | 131·05 | 65·54 | 19 32 49·3 | +269·2 |
| | Moon I. L. | - - | 4 3 14·92 | 131·36 | 65·65 | 20 19 15·8 | 195·0 |
| | $\gamma$ Tauri - - | 3.4 | 4 10 59·82 | | | 15 15 | |
| | $\epsilon$ Tauri - - | 4 | 4 19 35·55 | | | N. 18 50 | |
| 14 | $\gamma$ Tauri - - | 3.4 | 4 10 59·81 | | | N. 15 15 | |
| | $\epsilon$ Tauri - - | 4 | 4 19 35·52 | | | 18 50 | |
| | Moon I. U. | 6·4 | 4 29 32·23 | 131·50 | 65·71 | 20 50 43·3 | +119·4 |
| | Moon I. L. | - - | 4 55 50·06 | 131·44 | 65·71 | 21 7 0·1 | + 43·3 |
| | $\iota$ Tauri - - | 4.5 | 4 53 51·65 | | | 21 22 | |
| | $n$ Tauri - - | 5.6 | 5 9 58·86 | | | N. 21 56 | |
| 15 | $\iota$ Tauri - - | 4.5 | 4 53 51·63 | | | N. 21 22 | |
| | $n$ Tauri - - | 5.6 | 5 9 58·84 | | | 21 56 | |
| | Moon I. U. | 7·4 | 5 22 5·99 | 131·18 | 65·66 | 21 8 3·3 | − 32·7 |
| | Moon I. L. | - - | 5 48 17·61 | 130·73 | 65·55 | 20 53 58·5 | −107·9 |
| | B Tauri - - | 5 | 5 39 32·31 | | | 24 31 | |
| | $\chi^5$ Orionis - | 5 | 5 54 44·81 | | | N. 20 8 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Mar. 16 | B Tauri - - | 5 | 5 39 32 ·30 | | | N. 24 31 | |
| | $\chi^5$ Orionis - | 5 | 5 54 44 ·79 | | | 20 8 | |
| | Moon I. U. | 8 ·5 | 6 14 22 ·72 | 130 ·10 | 65 ·38 | 20 24 59 ·3 | —181 ·7 |
| | Moon I. L. | - - | 6 40 19 ·47 | 129 ·34 | 65 ·18 | 19 41 27 ·0 | 253 ·3 |
| | γ Geminor. | 3 | 6 28 47 ·30 | | | 16 32 | |
| | ζ Geminor. | 4 | 6 54 57 ·02 | | | N. 20 48 | |
| 17 | γ Geminor. | 3 | 6 28 47 ·28 | | | N. 16 32 | |
| | ζ Geminor. | 4 | 6 54 57 ·00 | | | 20 48 | |
| | Moon I. U. | 9 ·5 | 7 6 6 ·63 | 128 ·51 | 64 ·95 | 18 43 49 ·5 | —322 ·4 |
| | Moon I. L. | - - | 7 31 43 ·63 | 127 ·66 | 64 ·71 | 17 32 41 ·5 | 388 ·3 |
| | *k* Geminor. | 5 | 7 24 47 ·68 | | | 16 9 | |
| | *g* Geminor. | 6 | 7 37 11 ·16 | | | N. 18 53 | |
| 18 | *k* Geminor. | 5 | 7 24 47 ·66 | | | N. 16 9 | |
| | *g* Geminor. | 6 | 7 37 11 ·14 | | | 18 53 | |
| | Moon I. U. | 10 ·5 | 7 57 10 ·68 | 126 ·86 | 64 ·48 | 16 8 44 ·1 | —450 ·6 |
| | Moon I. L. | - - | 8 22 28 ·75 | 126 ·17 | 64 ·27 | 14 32 44 ·0 | 508 ·7 |
| | θ Cancri - - | 5.6 | 8 22 47 ·62 | | | 18 37 | |
| | δ Cancri - - | 4.5 | 8 35 54 ·73 | | | N. 18 43 | |
| 19 | θ Cancri - - | 5.6 | 8 22 47 ·61 | | | N. 18 37 | |
| | δ Cancri - - | 4.5 | 8 35 54 ·71 | | | 18 43 | |
| | Moon I. U. | 11 ·6 | 8 47 39 ·58 | 125 ·67 | 64 ·10 | 12 45 34 ·7 | —562 ·7 |
| | Moon I. L. | - - | 9 12 45 ·71 | 125 ·40 | 63 ·99 | 10 48 15 ·2 | 610 ·7 |
| | κ Cancri - * | 5.6 | 8 59 23 ·29 | | | 11 17 | |
| | ξ Leonis - * | 5 | 9 23 37 ·92 | | | N. 11 59 | |
| 20 | κ Cancri - * | 5.6 | 8 59 23 ·28 | | | N. 11 17 | |
| | ξ Leonis - * | 5 | 9 23 37 ·91 | | | 11 59 | |
| | Moon I. U. | 12 ·6 | 9 37 50 ·33 | 125 ·42 | 63 ·96 | 8 41 52 ·6 | —652 |
| | Moon I. L. | - - | 10 2 57 ·21 | 125 ·79 | 64 ·02 | 6 27 41 ·5 | 688 |
| | π Leonis - * | 4.5 | 9 52 3 ·88 | | | 8 47 | |
| | α Leonis - * | 1 | 10 0 9 ·53 | | | N. 12 43 | |
| 21 | π Leonis - * | 4.5 | 9 52 3 ·88 | | | N. 8 47 | |
| | α Leonis - * | 1 | 10 0 9 ·53 | | | 12 43 | |
| | Moon I. U. | 13 ·6 | 10 28 10 ·69 | 126 ·53 | 64 ·18 | 4 7 5 ·0 | —716 |
| | Moon I. L. | - - | 10 53 35 ·54 | 127 ·68 | 64 ·45 | 1 41 36 ·5 | 736 |
| | *d* Leonis - * | 5 | 10 52 36 ·06 | | | 4 27 | |
| | $p^4$ Leonis - - | 5.6 | 11 5 52 ·17 | | | N. 0 46 | |
| 22 | *d* Leonis - * | 5 | 10 52 36 ·06 | | | N. 4 27 | |
| | $p^4$ Leonis - - | 5.6 | 11 5 52 ·17 | | | N. 0 46 | |
| | Moon I. U. | 14 ·7 | 11 19 16 ·76 | 129 ·27 | 64 ·85 | S. 0 47 0 ·8 | —747 |
| | Moon I. L. | - - | 11 45 19 ·63 | 131 ·28 | 65 ·35 | S. 3 16 52 ·7 | —749 |
| | *v* Leonis - - | 4.5 | 11 29 3 ·64 | | | N. 0 2 | |
| | β Virginis - | 3.4 | 11 42 40 ·34 | | | N. 2 38 | |
| 23 | *v* Leonis - - | 4.5 | 11 29 3 ·64 | | | N. 0 2 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 845. | | | h m s | s | s | ° ′ ″ | ″ |
| ar. 23 | β Virginis - | 3.4 | 11 42 40 ·34 | | | N. 2 38 | |
| | Moon II. U. | 15 ·7 | 12 14 1 ·18 | 133 ·83 | 65 ·97 | S. 5 45 53 ·7 | −739 ·2 |
| | $\gamma^1$ Virginis - | 4 | 12 33 51 ·12 | | | 0 36 | |
| | ψ Virginis - | 5.6 | 12 46 20 ·94 | | | S. 8 42 | |
| 24 | $\gamma^1$ Virginis - | 4 | 12 33 51 ·13 | | | S. 0 36 | |
| | ψ Virginis - | 5.6 | 12 46 20 ·96 | | | 8 42 | |
| | Moon II. L. | - - | 12 41 3 ·87 | 136 ·67 | 66 ·69 | 8 11 47 ·5 | −717 ·7 |
| | Moon II. U. | 16 ·7 | 13 8 42 ·62 | 139 ·83 | 67 ·49 | 10 32 9 ·2 | 683 ·8 |
| | α Virginis - | 1 | 13 17 4 ·99 | | | 10 21 | |
| | x Virginis - | 5.6 | 13 41 30 ·37 | | | S. 17 21 | |
| 25 | α Virginis - | 1 | 13 17 4 ·99 | | | S. 10 21 | |
| | x Virginis - | 5.6 | 13 41 30 ·38 | | | 17 21 | |
| | Moon II. L. | - - | 13 37 0 ·69 | 143 ·21 | 68 ·34 | 12 44 26 ·6 | −636 ·9 |
| | Moon II. U. | 17 ·8 | 14 5 59 ·95 | 146 ·67 | 69 ·22 | 14 46 4 ·2 | 577 ·2 |
| | 2 Libræ - - | 6 | 14 15 7 ·65 | | | 11 0 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 21 ·66 | | | S. 15 24 | |
| 26 | 2 Libræ - - | 6 | 14 15 7 ·67 | | | S. 11 0 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 21 ·68 | | | 15 24 | |
| | Moon II. L. | - - | 14 35 40 ·44 | 150 ·05 | 70 ·08 | 16 34 28 ·0 | −504 ·7 |
| | Moon II. U. | 18 ·8 | 15 5 59 ·97 | 153 ·14 | 70 ·86 | 18 7 9 ·8 | 420 ·4 |
| | θ Libræ - - | 4.5 | 15 45 3 ·14 | | | 16 16 | |
| | $\beta^1$ Scorpii - | 2 | 15 56 28 ·59 | | | S. 19 23 | |
| 27 | θ Libræ - - | 4.5 | 15 45 3 ·17 | | | S. 16 16 | |
| | $\beta^1$ Scorpii - | 2 | 15 56 28 ·62 | | | 19 23 | |
| | Moon II. L. | - - | 15 36 53 ·95 | 155 ·75 | 71 ·52 | 19 21 57 ·8 | −326 ·0 |
| | Moon II. U. | 19 ·9 | 16 8 15 ·34 | 157 ·68 | 72 ·02 | 20 17 0 ·4 | 223 ·3 |
| | α Scorpii - | 1 | 16 19 57 ·53 | | | 26 5 | |
| | m Scorpii - | 5 | 16 32 39 ·42 | | | S. 17 26 | |
| 28 | α Scorpii - | 1 | 16 19 57 ·56 | | | S. 26 5 | |
| | m Scorpii - | 5 | 16 32 39 ·44 | | | 17 26 | |
| | Moon II. L. | - - | 16 39 54 ·99 | 158 ·77 | 72 ·32 | 20 50 55 ·0 | −115 ·1 |
| | Moon II. U. | 20 ·9 | 17 11 42 ·16 | 158 ·93 | 72 ·39 | 21 2 53 ·2 | − 4 ·4 |
| | D Ophiuchi - | 5 | 17 34 11 ·06 | | | 21 36 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 31 ·76 | | | S. 21 6 | |
| 29 | D Ophiuchi - | 5 | 17 34 11 ·09 | | | S. 21 36 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 31 ·79 | | | 21 6 | |
| | Moon II. L. | - - | 17 43 25 ·57 | 158 ·15 | 72 ·23 | 20 52 43 ·7 | +105 ·7 |
| | Moon II. U. | 21 ·9 | 18 14 54 ·33 | 156 ·50 | 71 ·87 | 20 20 51 ·1 | 212 ·2 |
| | σ Sagittarii | 3 | 18 45 41 ·07 | | | 26 29 | |
| | π Sagittarii | 4.5 | 19 0 34 ·42 | | | S. 21 16 | |
| 30 | σ Sagittarii | 3 | 18 45 41 ·10 | | | S. 26 29 | |
| | π Sagittarii | 4.5 | 19 0 34 ·45 | | | 21 16 | |
| | Moon II. L. | - - | 18 45 58 ·81 | 154 ·13 | 71 ·31 | S. 19 28 15 ·4 | +312 ·5 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Va ☾'s in 1 of L |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | |
| Mar. 30 | Moon II. U. | 23·0 | 19 16 31·41 | 151·23 | 70·61 | S. 18 16 25·0 | +40 |
| | $e^2$ Sagittarii | 5 | 19 33 40·52 | | | 16 29 | |
| | 57 Sagittarii | 5.6 | 19 43 12·72 | | | S. 19 26 | |
| 31 | $e^2$ Sagittarii | 5 | 19 33 40·54 | | | S. 16 29 | |
| | 57 Sagittarii | 5.6 | 19 43 12·75 | | | 19 26 | |
| | Moon II. L. | - - | 19 46 27·10 | 148·01 | 69·82 | 16 47 9·0 | +48 |
| | Moon II. U. | 24·0 | 20 15 43·11 | 144·66 | 68·99 | 15 2 33·5 | 55 |
| | ε Aquarii - | 4.5 | 20 39 18·06 | | | 10 4 | |
| | ν Aquarii - | 5 | 21 1 9·80 | | | S. 12 0 | |
| Apr. 1 | ε Aquarii - | 4.5 | 20 39 18·08 | | | S. 10 4 | |
| | ν Aquarii - | 5 | 21 1 9·82 | | | 12 0 | |
| | Moon II. L. | - - | 20 44 19·17 | 141·37 | 68·15 | 13 4 53·1 | +61 |
| | Moon II. U. | 25·0 | 21 12 16·89 | 138·29 | 67·36 | 10 56 23·6 | 66 |
| | β Aquarii - | 3 | 21 23 24·61 | | | 6 15 | |
| | 30 Aquarii - | 5.6 | 21 55 7·63 | | | S. 7 16 | |
| 2 | Moon II. L. | - - | 21 39 39·45 | 135·53 | 66·63 | S. 8 39 30·0 | +70 |
| | Moon II. U. | 26·1 | 22 6 31·08 | 133·15 | 65·99 | 6 16 22·4 | 72 |
| 3 | Moon II. L. | - - | 22 32 56·79 | 131·21 | 65·46 | S. 3 49 15·0 | +74 |
| | Moon II. U. | 27·1 | 22 59 1·87 | 129·71 | 65·04 | S. 1 20 15·8 | 74 |
| 4 | Moon II. L. | - - | 23 24 51·69 | 128·66 | 64·73 | N. 1 8 33·1 | +74 |
| | Moon II. U. | 28·2 | 23 50 31·48 | 128·04 | 64·53 | 3 35 14·2 | 72 |
| 5 | Moon II. L. | - - | 0 16 6·11 | 127·79 | 64·45 | N. 5 57 56·6 | +70 |
| | Moon II. U. | 29·2 | 0 41 39·88 | 127·89 | 64·45 | 8 14 54·8 | 66 |
| 6 | Moon I. L. | - - | 1 5 7·39 | 128·23 | 64·53 | N. 10 24 30·6 | +6 |
| 7 | Moon I. U. | 0·7 | 1 30 49·33 | 128·79 | 64·68 | N. 12 25 12·0 | +5 |
| | Moon I. L. | - - | 1 56 38·90 | 129·48 | 64·87 | 14 15 35·7 | 3 |
| 8 | Moon I. U. | 1·7 | 2 22 37·12 | 130·22 | 65·07 | N. 15 54 26·7 | +4 |
| | Moon I. L. | - - | 2 48 44·15 | 130·94 | 65·28 | 17 20 39·6 | 3 |
| 9 | Moon I. U. | 2·8 | 3 14 59·19 | 131·54 | 65·46 | N. 18 33 19·8 | +3 |
| | Moon I. L. | - - | 3 41 20·50 | 131·98 | 65·60 | 19 31 43·8 | 2 |
| 10 | Moon I. U. | 3·8 | 4 7 45·72 | 132·18 | 6 ·69 | N. 20 15 20·1 | +1 |
| | Moon I. L. | - - | 4 34 11·90 | 132·13 | 65·71 | 20 43 48·3 | 1 |
| 11 | α Tauri - - | 1 | 4 27 2·94 | | | N. 16 12 | |
| | i Tauri - - | 5.6 | 4 42 19·11 | | | 18 34 | |
| | Moon I. U. | 4·9 | 5 0 35·85 | 131·81 | 65·66 | 20 57 0·2 | + |
| | Moon I. L. | - - | 5 26 54·38 | 131·23 | 65·55 | 20 54 58·5 | — |
| | β Tauri - - | 2 | 5 16 31·18 | | | 28 28 | |
| | ζ Tauri - - | 3.4 | 5 28 24·26 | | | N. 21 3 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
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| 845. | | | h m s | s | s | ° ′ ″ | ″ |
| r. 12 | β Tauri - - | 2 | 5 16 31 ·17 | | | N.28 28 | |
| | ζ Tauri - - | 3.4 | 5 28 24 ·24 | | | 21 3 | |
| | Moon I. U. | 5 ·9 | 5 53 4 ·51 | 130 ·42 | 65 ·37 | 20 37 56 ·5 | —122 ·1 |
| | Moon I. L. | - - | 6 19 3 ·72 | 129 ·43 | 65 ·15 | 20 6 15 ·6 | 194 ·3 |
| | μ Geminor. | 3 | 6 13 36 ·49 | | | 22 35 | |
| | γ Geminor. | 3 | 6 28 46 ·81 | | | N.16 32 | |
| 13 | μ Geminor. | 3 | 6 13 36 ·48 | | | N.22 35 | |
| | γ Geminor. | 3 | 6 28 46 ·80 | | | 16 32 | |
| | Moon I. U. | 6 ·9 | 6 44 50 ·38 | 128 ·33 | 64 ·88 | 19 20 25 ·2 | —263 ·7 |
| | Moon I. L. | - - | 7 10 23 ·44 | 127 ·18 | 64 ·60 | 18 21 0 ·4 | 329 ·9 |
| | ζ Geminor. | 4 | 6 54 56 ·50 | | | 20 48 | |
| | δ Geminor. | 3.4 | 7 10 53 ·48 | | | N.22 16 | |
| 14 | ζ Geminor. | 4 | 6 54 56 ·49 | | | N.20 48 | |
| | δ Geminor. | 3.4 | 7 10 53 ·46 | | | 22 16 | |
| | Moon I. U. | 8 ·0 | 7 35 42 ·91 | 126 ·08 | 64 ·32 | 17 8 42 ·0 | —392 ·6 |
| | Moon I. L. | - - | 8 0 49 ·72 | 125 ·08 | 64 ·06 | 15 44 13 ·8 | 451 ·5 |
| | ζ Cancri - - | 6 | 8 3 20 ·69 | | | N.18 7 | |
| 15 | ζ Cancri - - | 6 | 8 3 20 ·67 | | | N.18 7 | |
| | Moon I. U. | 9 ·0 | 8 25 45 ·69 | 124 ·28 | 63 ·85 | 14 8 23 ·4 | —506 ·2 |
| | Moon I. L. | - - | 8 50 33 ·53 | 123 ·74 | 63 ·70 | 12 22 2 ·4 | 556 ·5 |
| | δ Cancri - - | 4.5 | 8 35 54 ·29 | | | 18 43 | |
| | $\alpha^2$ Cancri * | 5 | 8 50 2 ·35 | | | N.12 27 | |
| 16 | δ Cancri - - | 4.5 | 8 35 54 ·28 | | | N.18 43 | |
| | $\alpha^2$ Cancri * | 5 | 8 50 2 ·33 | | | 12 27 | |
| | Moon I. U. | 10 ·0 | 9 15 16 ·75 | 123 ·52 | 63 ·63 | 10 26 5 ·3 | —602 ·2 |
| | Moon I. L. | - - | 9 39 59 ·56 | 123 ·68 | 63 ·65 | 8 21 30 ·8 | 642 ·7 |
| | o Leonis * | 4 | 9 32 54 ·87 | | | 10 36 | |
| | π Leonis * | 4.5 | 9 52 3 ·60 | | | N. 8 47 | |
| 17 | o Leonis * | 4 | 9 32 54 ·85 | | | N.10 36 | |
| | π Leonis * | 4.5 | 9 52 3 ·58 | | | 8 47 | |
| | Moon I. U. | 11 ·1 | 10 4 46 ·76 | 124 ·27 | 63 ·78 | 6 9 24 ·4 | —677 ·4 |
| | Moon I. L. | - - | 10 29 43 ·78 | 125 ·32 | 64 ·03 | 3 50 58 ·2 | 705 ·8 |
| | ρ Leonis * | 4 | 10 24 41 ·26 | | | 10 6 | |
| | 34 Sextantis* | 6 | 10 34 38 ·23 | | | N. 4 24 | |
| 18 | ρ Leonis * | 4 | 10 24 41 ·25 | | | N.10 6 | |
| | 34 Sextantis* | 6 | 10 34 38 ·22 | | | 4 24 | |
| | Moon I. U. | 12 ·1 | 10 54 56 ·37 | 126 ·87 | 64 ·41 | N. 1 27 33 ·9 | —727 ·0 |
| | Moon I. L. | - - | 11 20 30 ·61 | 128 ·93 | 64 ·91 | S. 0 59 15 ·6 | 739 ·9 |
| | τ Leonis- - | 4 | 11 20 0 ·70 | | | N. 3 43 | |
| | υ Leonis- - | 4.5 | 11 29 3 ·56 | | | N. 0 2 | |
| 19 | τ Leonis - - | 4 | 11 20 0 ·69 | | | N. 3 43 | |
| | υ Leonis- - | 4.5 | 11 29 3 ·55 | | | N. 0 2 | |
| | Moon I. U. | 13 ·1 | 11 46 32 ·73 | 131 ·51 | 65 ·54 | S. 3 27 44 ·8 | —743 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s De in 1 hou of Lon |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Apr. 19 | Moon I. L. | - - | 12 13 8 ·83 | 134 ·59 | 66 ·29 | S. 5 55 53 ·0 | —736 |
| | η Virginis - | 3.4 | 12 12 1 ·42 | | | N. 0 12 | |
| | q Virginis - | 5.6 | 12 25 49 ·92 | | | S. 8 36 | |
| 20 | η Virginis - | 3.4 | 12 12 1 ·42 | | | N. 0 12 | |
| | q Virginis - | 5.6 | 12 25 49 ·92 | | | S. 8 36 | |
| | Moon I. U. | 14 ·1 | 12 40 24 ·60 | 138 ·12 | 67 ·16 | 8 21 24 ·6 | —717 |
| | Moon I. L. | - - | 13 8 25 ·06 | 142 ·01 | 68 ·11 | 10 41 49 ·6 | 684 |
| | θ Virginis - | 4.5 | 13 1 58 ·98 | | | 4 43 | |
| | α Virginis - | 1 | 13 17 5 ·19 | | | S. 10 21 | |
| 21 | θ Virginis - | 4.5 | 13 1 58 ·98 | | | S. 4 43 | |
| | α Virginis - | 1 | 13 17 5 ·19 | | | 10 21 | |
| | Moon I. U. | 15 ·2 | 13 37 13 ·87 | 146 ·15 | 69 ·11 | 12 54 23 ·7 | —638 |
| | λ Virginis - | 4 | 14 10 47 ·31 | | | 12 39 | |
| | 2 Libræ - - | 6 | 14 15 8 ·00 | | | S. 11 0 | |
| 22 | λ Virginis - | 4 | 14 10 47 ·31 | | | S. 12 39 | |
| | 2 Libræ - - | 6 | 14 15 8 ·01 | | | 11 0 | |
| | Moon II. L. | - - | 14 9 13 ·19 | 150 ·52 | 70 ·12 | 14 56 13 ·5 | —577 |
| | Moon II. U. | 16 ·2 | 14 39 43 ·93 | 154 ·55 | 71 ·10 | 16 44 24 ·5 | 501 |
| | ι¹ Libræ - - | 5.6 | 15 3 27 ·20 | | | 19 12 | |
| | γ¹ Libræ - - | 4.5 | 15 26 55 ·00 | | | S. 14 16 | |
| 23 | ι¹ Libræ - - | 5.6 | 15 3 27 ·21 | | | S. 19 12 | |
| | γ¹ Libræ - - | 4.5 | 15 26 55 ·02 | | | 14 16 | |
| | Moon II. L. | - - | 15 11 0 ·76 | 158 ·16 | 71 ·96 | 18 16 6 ·1 | —412 |
| | Moon II. U. | 17 ·2 | 15 42 56 ·88 | 161 ·06 | 72 ·67 | 19 28 45 ·0 | 311 |
| | β¹ Scorpii - | 2 | 15 56 29 ·24 | | | 19 23 | |
| | α Scorpii - | 1 | 16 19 58 ·21 | | | S. 26 5 | |
| 24 | β¹ Scorpii - - | 2 | 15 56 29 ·25 | | | S. 19 23 | |
| | α Scorpii - - | 1 | 16 19 58 ·24 | | | 26 5 | |
| | Moon II. L. | - - | 16 15 22 ·39 | 163 ·01 | 73 ·15 | 20 20 15 ·0 | —201 |
| | Moon II. U. | 18 ·3 | 16 48 4 ·75 | 163 ·84 | 73 ·38 | 20 49 7 ·9 | — 86 |
| | η Ophiuchi - | 2.3 | 17 1 32 ·64 | | | 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 32 ·87 | | | S. 24 50 | |
| 25 | η Ophiuchi - | 2.3 | 17 1 32 ·67 | | | S. 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 32 ·90 | | | 24 50 | |
| | Moon II. L. | - - | 17 20 49 ·81 | 163 ·46 | 73 ·32 | 20 54 40 ·5 | + 30 |
| | Moon II. U. | 19 ·3 | 17 53 23 ·29 | 161 ·92 | 73 ·00 | 20 36 57 ·9 | 145 |
| | μ¹ Sagittarii - | 3.4 | 18 4 32 ·60 | | | 21 6 | |
| | A.S.C. 2125 | 5 | 18 20 24 ·53 | | | S. 14 39 | |
| 26 | μ¹ Sagittarii - | 3.4 | 18 4 32 ·63 | | | S. 21 6 | |
| | A.S.C. 2125 | 5 | 18 20 24 ·56 | | | 14 39 | |
| | Moon II. L. | - - | 18 25 31 ·98 | 159 ·37 | 72 ·43 | 19 56 50 ·7 | +254 |
| | Moon II. U. | 20 ·3 | 18 57 5 ·02 | 156 ·03 | 71 ·67 | 18 55 49 ·4 | +354 |
| | ρ¹ Sagittarii - | 5 | 19 12 43 ·44 | | | S. 18 8 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| pr. 26 | $e^2$ Sagittarii | 5 | 19 33 41 ·34 | | | S. 16 29 | |
| 27 | $\rho^1$ Sagittarii | 5 | 19 12 43 ·47 | | | S. 18 8 | |
| | $e^2$ Sagittarii | 5 | 19 33 41 ·37 | | | 16 29 | |
| | Moon II. L. | - - | 19 27 54 ·55 | 152 ·17 | 70 ·76 | 17 35 53 ·6 | +443 ·1 |
| | Moon II. U. | 21 ·4 | 19 57 56 ·08 | 148 ·07 | 69 ·78 | 15 59 22 ·3 | 520 ·0 |
| | $\alpha^2$ Capricorni | 3 | 20 9 29 ·08 | | | 13 1 | |
| | $\varepsilon$ Aquarii - | 4.5 | 20 39 18 ·83 | | | S. 10 4 | |
| 28 | $\alpha^2$ Capricorni | 3 | 20 9 29 ·11 | | | S. 13 1 | |
| | $\varepsilon$ Aquarii - | 4.5 | 20 39 18 ·86 | | | 10 4 | |
| | Moon II. L. | - - | 20 27 8 ·21 | 143 ·97 | 68 ·79 | 14 8 44 ·0 | +584 ·3 |
| | Moon II. U. | 22 ·4 | 20 55 32 ·16 | 140 ·07 | 67 ·81 | 12 6 29 ·2 | 636 ·1 |
| | $\beta$ Aquarii - | 3 | 21 23 25 ·33 | | | 6 15 | |
| | $\lambda$ Capricorni | 5.6 | 21 38 12 ·88 | | | S. 12 5 | |
| 29 | $\beta$ Aquarii - | 3 | 21 23 25 ·36 | | | S. 6 15 | |
| | $\lambda$ Capricorni | 5.6 | 21 38 12 ·91 | | | 12 5 | |
| | Moon II. L. | - - | 21 23 11 ·34 | 136 ·53 | 66 ·92 | 9 55 4 ·2 | +676 ·1 |
| | Moon II. U. | 23 ·4 | 21 50 10 ·56 | 133 ·43 | 66 ·12 | 7 36 48 ·5 | 704 ·7 |
| | $\gamma$ Aquarii - | 4 | 22 13 40 ·15 | | | 2 10 | |
| | $\eta$ Aquarii - | 4 | 22 27 24 ·71 | | | S. 0 55 | |
| 30 | $\gamma$ Aquarii - | 4 | 22 13 40 ·18 | | | S. 2 10 | |
| | $\eta$ Aquarii - | 4 | 22 27 24 ·74 | | | 0 55 | |
| | Moon II. L. | - - | 22 16 35 ·63 | 130 ·84 | 65 ·44 | 5 13 52 ·9 | +722 ·8 |
| | Moon II. U. | 24 ·5 | 22 42 32 ·91 | 128 ·79 | 64 ·88 | S. 2 48 20 ·9 | 731 ·0 |
| | $\beta$ Piscium - | 5 | 22 56 0 ·55 | | | N. 2 59 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 8 ·99 | | | N. 2 26 | |
| ay 1 | $\beta$ Piscium - | 5 | 22 56 0 ·57 | | | N. 2 59 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 9 ·01 | | | N. 2 26 | |
| | Moon II. L. | - - | 23 8 8 ·83 | 127 ·29 | 64 ·46 | S. 0 22 6 ·2 | +730 ·0 |
| | Moon II. U. | 25 ·5 | 23 33 29 ·93 | 126 ·31 | 64 ·18 | N. 2 3 3 ·2 | 720 ·2 |
| | $\omega$ Piscium * | 4.5 | 23 51 22 ·10 | | | 6 0 | |
| | $d$ Piscium * | 5.6 | 0 12 38 ·53 | | | N. 7 20 | |
| 2 | Moon II. L. | - - | 23 58 42 ·16 | 125 ·81 | 64 ·01 | N. 4 25 26 ·3 | +702 ·3 |
| | Moon II. U. | 26 ·6 | 0 23 51 ·10 | 125 ·75 | 63 ·96 | 6 43 25 ·7 | 676 ·4 |
| 3 | Moon II. L. | - - | 0 49 1 ·71 | 126 ·07 | 64 ·02 | N. 8 55 29 ·0 | +643 ·0 |
| | Moon II. U. | 27 ·6 | 1 14 18 ·04 | 126 ·70 | 64 ·15 | 11 0 8 ·2 | 602 ·4 |
| 4 | Moon II. L. | - - | 1 39 43 ·34 | 127 ·55 | 64 ·35 | N. 12 55 58 ·7 | +555 ·0 |
| | Moon II. U. | 28 ·7 | 2 5 19 ·77 | 128 ·54 | 64 ·58 | 14 41 42 ·1 | 501 ·2 |
| 5 | Moon II. L. | - - | 2 31 8 ·41 | 129 ·57 | 64 ·84 | N. 16 16 4 ·2 | +441 ·6 |
| | Moon I. U. | 0 ·1 | 2 54 58 ·96 | 130 ·50 | 65 ·09 | 17 37 59 ·3 | 376 ·8 |
| 6 | Moon I. L. | - - | 3 21 10 ·15 | 131 ·33 | 65 ·31 | N. 18 46 31 ·2 | +307 ·8 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hr. of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| May 7 | Moon I. U. | 1·1 | 3 47 30·07 | 131·94 | 65·46 | N. 19 40 52·9 | +235 |
| | Moon I. L. | - - | 4 13 55·56 | 132·26 | 65·57 | 20 20 30·2 | 160 |
| 8 | Moon I. U. | 2·2 | 4 40 22·90 | 132·24 | 65·59 | N. 20 45 0·9 | + 84 |
| | Moon I. L. | - - | 5 6 47·97 | 131·88 | 65·52 | 20 54 17·0 | + 8 |
| 9 | Moon I. U. | 3·2 | 5 33 6·66 | 131·18 | 65·38 | N. 20 48 22·6 | − 67 |
| | Moon I. L. | - - | 5 59 15·21 | 130·20 | 65·16 | 20 27 34·1 | 140 |
| 10 | η Geminor. | 4.5 | 6 5 32·53 | | | N. 22 33 | |
| | μ Geminor. | 3 | 6 13 36·14 | | | 22 35 | |
| | Moon I. U. | 4·2 | 6 25 10·45 | 128·98 | 64·88 | 19 52 18·3 | −211 |
| | Moon I. L. | - - | 6 50 50·07 | 127·61 | 64·56 | 19 3 10·9 | 279 |
| | ζ Geminor. | 4 | 6 54 56·13 | | | 20 48 | |
| | 51 Geminor. | 5 | 7 4 29·28 | | | N. 16 25 | |
| 11 | ζ Geminor. | 4 | 6 54 56·12 | | | N. 20 48 | |
| | 51 Geminor. | 5 | 7 4 29·27 | | | 16 25 | |
| | Moon I. U. | 5·3 | 7 16 12·79 | 126·18 | 64·23 | 18 0 54·4 | −341 |
| | Moon I. L. | - - | 7 41 18·41 | 124·78 | 63·89 | 16 46 16·1 | 405 |
| | g Geminor. | 6 | 7 37 10·27 | | | N. 18 53 | |
| 12 | g Geminor. | 6 | 7 37 10·25 | | | N. 18 53 | |
| | Moon I. U. | 6·3 | 8 6 7·87 | 123·49 | 63·58 | 15 20 6·8 | −458 |
| | Moon I. L. | - - | 8 30 43·09 | 122·42 | 63·32 | 13 43 18·8 | 509 |
| | θ Cancri - - | 5.6 | 8 22 46·76 | | | 18 37 | |
| | δ Cancri - - | 4.5 | 8 35 53·88 | | | N. 18 43 | |
| 13 | θ Cancri - - | 5.6 | 8 22 46·74 | | | N. 18 37 | |
| | δ Cancri - - | 4.5 | 8 35 53·86 | | | 18 43 | |
| | Moon I. U. | 7·3 | 8 55 7·14 | 121·64 | 63·13 | 11 56 46·8 | −551 |
| | Moon I. L. | - - | 9 19 23·78 | 121·20 | 63·03 | 10 1 26·9 | 597 |
| | ξ Leonis - * | 5 | 9 23 37·18 | | | 11 59 | |
| | o Leonis - * | 4 | 9 32 54·49 | | | N. 10 36 | |
| 14 | ξ Leonis - * | 5 | 9 23 37·17 | | | N. 11 59 | |
| | o Leonis - * | 4 | 9 32 54·48 | | | 10 36 | |
| | Moon I. U. | 8·4 | 9 43 37·73 | 121·20 | 63·04 | 7 58 16·6 | −633 |
| | Moon I. L. | - - | 10 7 54·37 | 121·66 | 63·17 | 5 48 17·0 | 663 |
| | α Leonis - * | 1 | 10 0 8·88 | | | N. 12 43 | |
| 15 | α Leonis - * | 1 | 10 0 8·88 | | | N. 12 43 | |
| | Moon I. U. | 9·4 | 10 32 19·68 | 122·65 | 63·43 | 3 32 33·0 | −691 |
| | Moon I. L. | - - | 10 57 0·15 | 124·19 | 63·83 | 1 12 16·9 | 710 |
| | d Leonis - * | 5 | 10 52 35·60 | | | N. 4 27 | |
| | φ Leonis - - | 5 | 11 8 49·49 | | | S. 2 48 | |
| 16 | d Leonis - * | 5 | 10 52 35·59 | | | N. 4 27 | |
| | φ Leonis - - | 5 | 11 8 49·48 | | | S. 2 48 | |
| | Moon I. U. | 10·4 | 11 22 2·70 | 126·33 | 64·38 | S. 1 11 11·3 | −724 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| May 16 | Moon I. L. | - - | 11 47 34 ·50 | 129 ·07 | 65 ·08 | S. 3 36 19 ·0 | —727 ·0 |
| | β Virginis - | 3.4 | 11 42 40 ·07 | | | N. 2 38 | |
| 17 | β Virginis - | 3.4 | 11 42 40 ·07 | | | N. 2 38 | |
| | Moon I. U. | 11 ·5 | 12 13 42 ·76 | 132 ·41 | 65 ·91 | S. 6 1 21 ·0 | —721 ·6 |
| | Moon I. L. | - - | 12 40 34 ·53 | 136 ·31 | 66 ·87 | 8 24 14 ·8 | 705 ·4 |
| | q Virginis - | 5.6 | 12 25 49 ·80 | | | 8 36 | |
| | ψ Virginis - | 5.6 | 12 46 20 ·99 | | | S. 8 42 | |
| 18 | q Virginis - | 5.6 | 12 25 49 ·79 | | | S. 8 36 | |
| | ψ Virginis - | 5.6 | 12 46 20 ·98 | | | 8 42 | |
| | Moon I. U. | 12 ·5 | 13 8 16 ·24 | 140 ·72 | 67 ·96 | 10 42 41 ·5 | —676 ·8 |
| | Moon I. L. | - - | 13 36 53 ·19 | 145 ·50 | 69 ·10 | 12 54 4 ·0 | 634 ·5 |
| | α Virginis - | 1 | 13 17 5 ·18 | | | 10 21 | |
| | O Virginis - | 6 | 13 37 44 ·12 | | | S. 11 39 | |
| 19 | α Virginis - | 1 | 13 17 5 ·18 | | | S. 10 21 | |
| | O Virginis - | 6 | 13 37 44 ·11 | | | 11 39 | |
| | Moon I. U. | 13 ·5 | 14 6 28 ·95 | 150 ·48 | 70 ·29 | 14 55 29 ·6 | —577 ·2 |
| | Moon I. L. | - - | 14 37 4 ·49 | 155 ·41 | 71 ·44 | 16 43 54 ·5 | 504 ·3 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 22 ·32 | | | S. 15 24 | |
| 20 | $\alpha^2$ Libræ - - | 3 | 14 42 22 ·32 | | | S. 15 24 | |
| | Moon I. U. | 14 ·6 | 15 8 37 ·49 | 160 ·00 | 72 ·50 | 18 16 13 ·6 | —416 ·3 |
| | Moon I. L. | - - | 15 41 1 ·79 | 163 ·90 | 73 ·39 | 19 29 31 ·0 | 314 ·3 |
| | λ Libræ - - | 5 | 15 44 24 ·40 | | | 19 42 | |
| | $\beta^1$ Scorpii - | 2 | 15 56 29 ·64 | | | S. 19 23 | |
| 21 | λ Libræ - - | 5 | 15 44 24 ·41 | | | S. 19 42 | |
| | $\beta^1$ Scorpii - | 2 | 15 56 29 ·65 | | | 19 23 | |
| | Moon II. U. | 15 ·6 | 16 16 35 ·17 | 166 ·87 | 74 ·04 | 20 21 12 ·8 | —201 ·0 |
| | m Scorpii - | 5 | 16 32 40 ·60 | | | 17 26 | |
| | η Ophiuchi - | 2.3 | 17 1 33 ·19 | | | S. 15 32 | |
| 22 | m Scorpii - | 5 | 16 32 40 ·61 | | | S. 17 26 | |
| | η Ophiuchi - | 2.3 | 17 1 33 ·21 | | | 15 32 | |
| | Moon II. L. | - - | 16 50 8 ·25 | 168 ·40 | 74 ·41 | 20 49 25 ·5 | — 80 ·2 |
| | Moon II. U. | 16 ·7 | 17 23 51 ·18 | 168 ·49 | 74 ·44 | 20 53 5 ·0 | + 43 ·7 |
| | 4 Sagittarii | 5 | 17 50 23 ·49 | | | 23 48 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 33 ·30 | | | S. 21 6 | |
| 23 | 4 Sagittarii | 5 | 17 50 23 ·51 | | | S. 23 48 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 33 ·33 | | | 21 6 | |
| | Moon II. L. | - - | 17 57 26 ·37 | 167 ·13 | 74 ·15 | 20 32 5 ·2 | +165 ·5 |
| | Moon II. U. | 17 ·7 | 18 30 37 ·30 | 164 ·48 | 73 ·57 | 19 47 17 ·9 | +280 ·9 |
| | π Sagittarii | 4.5 | 19 0 36 ·08 | | | 21 16 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 44 ·22 | | | S. 18 8 | |
| 24 | π Sagittarii | 4.5 | 19 0 36 ·10 | | | S. 21 16 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 44 ·25 | | | S. 18 8 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| | | | h m s | s | s | ° ′ ″ | ″ |
| 1845. May 24 | Moon II. L. | - - | 19 3 9·92 | 160·81 | 72·74 | S. 18 40 25·2 | +385 |
| | Moon II. U. | 18·7 | 19 34 53·95 | 156·45 | 71·73 | 17 13 48·3 | 477 |
| | $\alpha^2$ Capricorni | 3 | 20 9 29·89 | | | 13 1 | |
| | $\rho$ Capricorni | 5 | 20 20 3·78 | | | S. 18 19 | |
| 25 | $\alpha^2$ Capricorni | 3 | 20 9 29·92 | | | S. 13 1 | |
| | $\rho$ Capricorni | 5 | 20 20 3·81 | | | 18 19 | |
| | Moon II. L. | - - | 20 5 43·21 | 151·74 | 70·63 | 15 30 13·3 | +555 |
| | Moon II. U. | 19·8 | 20 35 35·44 | 146·99 | 69·50 | 13 32 36·1 | 618 |
| | $\nu$ Aquarii - | 5 | 21 1 11·41 | | | 12 0 | |
| | $\beta$ Aquarii - | 3 | 21 23 26·14 | | | S. 6 15 | |
| 26 | $\nu$ Aquarii - | 5 | 21 1 11·44 | | | S. 12 0 | |
| | $\beta$ Aquarii - | 3 | 21 23 26·17 | | | 6 15 | |
| | Moon II. L. | - - | 21 4 31·72 | 142·45 | 68·40 | 11 23 52·4 | +666 |
| | Moon II. U. | 20·8 | 21 32 35·66 | 138·29 | 67·36 | 9 6 50·5 | 701 |
| | 30 Aquarii - | 5.6 | 21 55 9·15 | | | 7 16 | |
| | $\gamma$ Aquarii - | 4 | 22 13 41·00 | | | S. 2 10 | |
| 27 | 30 Aquarii - | 5.6 | 21 55 9·18 | | | S. 7 16 | |
| | $\gamma$ Aquarii - | 4 | 22 13 40·98 | | | 2 10 | |
| | Moon II. L. | - - | 21 59 52·79 | 134·65 | 66·45 | 6 44 5·8 | +724 |
| | Moon II. U. | 21·8 | 22 26 29·59 | 131·58 | 65·66 | S. 4 17 58·9 | 735 |
| | $\beta$ Piscium - | 5 | 22 56 1·32 | | | N. 2 59 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 9·74 | | | N. 2 26 | |
| 28 | $\beta$ Piscium - | 5 | 22 56 1·35 | | | N. 2 59 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 9·77 | | | N. 2 26 | |
| | Moon II. L. | - - | 22 52 33·22 | 129·12 | 65·02 | S. 1 50 37·1 | +736 |
| | Moon II. U. | 22·9 | 23 18 10·95 | 127·27 | 64·52 | N. 0 36 6·0 | 729 |
| | $\iota$ Piscium * | 4.5 | 23 32 0·45 | | | 4 47 | |
| | $\omega$ Piscium * | 4.5 | 23 51 22·81 | | | N. 6 0 | |
| 29 | $\iota$ Piscium * | 4.5 | 23 32 0·48 | | | N. 4 47 | |
| | $\omega$ Piscium * | 4.5 | 23 51 22·84 | | | 6 0 | |
| | Moon II. L. | - - | 23 43 29·96 | 125·99 | 64·17 | 3 0 27·3 | +713 |
| | Moon II. U. | 23·9 | 0 8 36·95 | 125·26 | 63·96 | 5 20 53·8 | 690 |
| | $\delta$ Piscium * | 5 | 0 40 40·16 | | | N. 6 44 | |
| 30 | $\delta$ Piscium * | 5 | 0 40 40·19 | | | N. 6 44 | |
| | Moon II. L. | - - | 0 33 38·24 | 125·03 | 63·87 | 7 35 58·0 | +659 |
| | Moon II. U. | 24·9 | 0 58 39·32 | 125·22 | 63·90 | 9 44 18·3 | 622 |
| | $\eta$ Piscium - | 4 | 1 23 13·24 | | | 14 33 | |
| | $\pi$ Piscium * | 6 | 1 28 54·68 | | | N. 11 21 | |
| 31 | Moon II. L. | - - | 1 23 44·87 | 125·76 | 64·01 | N. 11 44 38·7 | +579 |
| | Moon II. U. | 26·0 | 1 48 58·69 | 126·58 | 64·19 | 13 35 46·2 | 530 |
| June 1 | Moon II. L. | - - | 2 14 23·48 | 127·57 | 64·42 | N. 15 16 30·9 | +476 |
| | Moon II. U. | 27·0 | 2 40 0·76 | 128·64 | 64·67 | N. 16 45 48·4 | +416 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| June 2 | Moon II. L. | - - | 3 5 50 ·85 | 129 ·69 | 64 ·92 | N.18 2 38 ·7 | +351 ·5 |
| | Moon II. U. | 28 ·0 | 3 31 52 ·87 | 130 ·62 | 65 ·13 | 19 6 9 ·5 | 283 ·0 |
| 3 | Moon II. L. | - - | 3 58 4 ·79 | 131 ·33 | 65 ·31 | N.19 55 36 ·9 | +211 ·1 |
| | Moon II. U. | 29 ·1 | 4 24 23 ·51 | 131 ·74 | 65 ·40 | 20 30 27 ·5 | 137 ·0 |
| 4 | Moon II. L. | - - | 4 50 45 ·20 | 131 ·81 | 65 ·42 | N.20 50 19 ·1 | + 61 ·5 |
| 5 | Moon I. U. | 0 ·5 | 5 14 54 ·83 | 131 ·53 | 65 ·35 | N.20 55 3 ·6 | — 14 ·1 |
| | Moon I. L. | - - | 5 41 9 ·69 | 130 ·88 | 65 ·20 | 20 44 44 ·4 | 88 ·8 |
| 6 | Moon I. U. | 1 ·5 | 6 7 14 ·71 | 129 ·90 | 64 ·96 | N.20 19 39 ·7 | —161 ·6 |
| | Moon I. L. | - - | 6 33 6 ·25 | 128 ·65 | 64 ·66 | 19 40 17 ·2 | 231 ·6 |
| 7 | Moon I. U. | 2 ·6 | 6 58 41 ·49 | 127 ·20 | 64 ·31 | N.18 47 15 ·7 | —298 ·0 |
| | Moon I. L. | - - | 7 23 58 ·59 | 125 ·64 | 63 ·94 | 17 41 22 ·1 | 360 ·2 |
| 8 | Moon I. U. | 3 ·6 | 7 48 56 ·93 | 124 ·09 | 63 ·57 | N.16 23 28 ·9 | —417 ·8 |
| | Moon I. L. | - - | 8 13 37 ·00 | 122 ·61 | 63 ·20 | 14 54 33 ·0 | 470 ·7 |
| 9 | ζ Cancri - - | 6 | 8 3 20 ·03 | | | N.18 7 | |
| | θ Cancri - - | 5.6 | 8 22 46 ·50 | | | 18 37 | |
| | Moon I. U. | 4 ·6 | 8 38 0 ·38 | 121 ·32 | 62 ·90 | 13 15 32 ·9 | —518 ·5 |
| | Moon I. L. | - - | 9 2 9 ·77 | 120 ·30 | 62 ·66 | 11 27 29 ·5 | 561 ·3 |
| | $\alpha^2$ Cancri - * | 5 | 8 50 1 ·66 | | | 12 27 | |
| | κ Cancri - * | 5.6 | 8 59 22 ·23 | | | N.11 17 | |
| 10 | $\alpha^2$ Cancri - * | 5 | 8 50 1 ·66 | | | N.12 27 | |
| | κ Cancri - * | 5.6 | 8 59 22 ·22 | | | 11 17 | |
| | Moon I. U. | 5 ·7 | 9 26 8 ·82 | 119 ·61 | 62 ·51 | 9 31 23 ·4 | —598 ·9 |
| | Moon I. L. | - - | 9 50 2 ·03 | 119 ·33 | 62 ·47 | 7 28 17 ·1 | 631 ·3 |
| | π Leonis - * | 4.5 | 9 52 2 ·92 | | | 8 47 | |
| | α Leonis - * | 1 | 10 0 8 ·57 | | | N.12 43 | |
| 11 | π Leonis - * | 4.5 | 9 52 2 ·91 | | | N. 8 47 | |
| | α Leonis - * | 1 | 10 0 8 ·56 | | | 12 43 | |
| | Moon I. U. | 6 ·7 | 10 13 54 ·64 | 119 ·52 | 62 ·54 | 5 19 13 ·2 | —658 ·4 |
| | Moon I. L. | - - | 10 37 52 ·51 | 120 ·22 | 62 ·75 | 3 5 16 ·8 | 680 ·0 |
| | 48 Leonis - * | 5.6 | 10 26 44 ·69 | | | 7 45 | |
| | *d* Leonis - * | 5 | 10 52 35 ·30 | | | N. 4 27 | |
| 12 | 48 Leonis - * | 5.6 | 10 26 44 ·68 | | | N. 7 45 | |
| | *d* Leonis - * | 5 | 10 52 35 ·29 | | | 4 27 | |
| | Moon I. U. | 7 ·7 | 11 2 2 ·20 | 121 ·49 | 63 ·11 | N. 0 47 36 ·8 | —695 ·6 |
| | Moon I. L. | - - | 11 26 30 ·62 | 123 ·35 | 63 ·62 | S. 1 32 31 ·7 | —704 ·7 |
| | τ Leonis - - | 4 | 11 20 0 ·14 | | | N. 3 43 | |
| | υ Leonis - - | 4.5 | 11 29 3 ·03 | | | N. 0 2 | |
| 13 | τ Leonis - - | 4 | 11 20 0 ·13 | | | N. 3 43 | |
| | υ Leonis - - | 4.5 | 11 29 3 ·02 | | | N. 0 2 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| June 13 | Moon I. U. | 8·8 | 11 51 25·14 | 125·84 | 64·28 | S. 3 53 46·1 | −706 |
| | Moon I. L. | - - | 12 16 53·34 | 128·97 | 65·10 | S. 6 14 33·0 | 699 |
| | η Virginis - | 3.4 | 12 12 1·01 | | | N. 0 12 | |
| | q Virginis - | 5.6 | 12 25 49·56 | | | S. 8 36 | |
| 14 | η Virginis - | 3.4 | 12 12 1·00 | | | N. 0 12 | |
| | q Virginis - | 5.6 | 12 25 49·55 | | | S. 8 36 | |
| | Moon I. U. | 9·8 | 12 43 2·79 | 132·71 | 66·05 | 8 33 6·0 | −683 |
| | Moon I. L. | - - | 13 10 0·74 | 137·04 | 67·14 | 10 47 23·8 | 657 |
| | g Virginis - | 5.6 | 12 59 49·83 | | | 9 55 | |
| | α Virginis - | 1 | 13 17 5·02 | | | S. 10 21 | |
| 15 | g Virginis - | 5.6 | 12 59 49·82 | | | S. 9 55 | |
| | α Virginis - | 1 | 13 17 5·01 | | | 10 21 | |
| | Moon I. U. | 10·8 | 13 37 53·72 | 141·87 | 68·34 | 12 55 7·5 | −618 |
| | Moon I. L. | - - | 14 6 46·93 | 147·05 | 69·58 | 14 53 41·8 | 565 |
| | λ Virginis - | 4 | 14 10 47·37 | | | S. 12 39 | |
| 16 | λ Virginis - | 4 | 14 10 47·36 | | | S. 12 39 | |
| | Moon I. U. | 11·9 | 14 36 43·44 | 152·38 | 70·84 | 16 40 17·3 | −498 |
| | Moon I. L. | - - | 15 7 43·43 | 157·57 | 72·05 | 18 11 55·1 | 415 |
| | $\iota^1$ Libræ - - | 5.6 | 15 3 27·53 | | | 19 12 | |
| | $\gamma^1$ Libræ - - | 4.5 | 15 26 55·43 | | | S. 14 16 | |
| 17 | $\iota^1$ Libræ - - | 5.6 | 15 3 27·52 | | | S. 19 12 | |
| | $\gamma^1$ Libræ - - | 4.5 | 15 26 55·43 | | | 14 16 | |
| | Moon I. U. | 12·9 | 15 39 43·34 | 162·30 | 73·13 | 19 25 36·5 | −318 |
| | Moon I. L. | - - | 16 12 35·39 | 166·20 | 74·00 | 20 18 35·4 | 209 |
| | $\beta^1$ Scorpii - | 2 | 15 56 29·82 | | | 19 23 | |
| | α Scorpii - | 1 | 16 19 58·98 | | | S. 26 5 | |
| 18 | $\beta^1$ Scorpii - | 2 | 15 56 29·83 | | | S. 19 23 | |
| | α Scorpii - | 1 | 16 19 58·98 | | | 26 5 | |
| | Moon I. U. | 14·0 | 16 46 7·49 | 168·92 | 74·59 | 20 48 34·4 | − 8 |
| | Moon I. L. | - - | 17 20 3·95 | 170·22 | 74·86 | 20 53 59·7 | + 3 |
| | η Ophiuchi - | 2.3 | 17 1 33·53 | | | 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 33·88 | | | S. 24 50 | |
| 19 | η Ophiuchi - | 2.3 | 17 1 33·54 | | | S. 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 33·89 | | | 24 50 | |
| | Moon II. U. | 15·0 | 17 56 36·32 | 169·94 | 74·79 | 20 34 13·7 | +16 |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 33·80 | | | 21 6 | |
| | o Sagittarii | 4.5 | 18 55 27·57 | | | S. 21 58 | |
| 20 | $\mu^1$ Sagittarii | 3.4 | 18 4 33·82 | | | S. 21 6 | |
| | o Sagittarii | 4.5 | 18 55 27·59 | | | 21 58 | |
| | Moon II. L. | - - | 18 30 26·37 | 168·16 | 74·39 | 19 49 40·3 | +28 |
| | Moon II. U. | 16·0 | 19 3 47·15 | 165·11 | 73·69 | 18 41 44·6 | +39 |
| | $e^2$ Sagittarii | 5 | 19 33 42·83 | | | 16 29 | |
| | 57 Sagittarii | 5.6 | 19 43 15·09 | | | S. 19 26 | |

| ate. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 45. | | | h m s | s | s | ° ′ ″ | ″ |
| ne 21 | $e^2$ Sagittarii | 5 | 19 33 42·84 | | | S. 16 29 | |
| | 57 Sagittarii | 5.6 | 19 43 15·12 | | | 19 26 | |
| | Moon II. L. | - - | 19 36 25·35 | 161·12 | 72·78 | 17 12 41·2 | +493·5 |
| | Moon II. U. | 17·1 | 20 8 11·73 | 156·54 | 71·72 | 15 25 21·9 | 577·0 |
| | μ Aquarii - | 4.5 | 20 44 20·85 | | | 9 34 | |
| | ν Aquarii - | 5 | 21 1 12·18 | | | S. 12 0 | |
| 22 | μ Aquarii - | 4.5 | 20 44 20·87 | | | S. 9 34 | |
| | ν Aquarii - | 5 | 21 1 12·21 | | | 12 0 | |
| | Moon II. L. | - - | 20 39 1·36 | 151·72 | 70·60 | 13 22 59·1 | +644·0 |
| | Moon II. U. | 18·1 | 21 8 53·32 | 146·97 | 69·46 | 11 8 50·6 | 694·7 |
| | β Aquarii - | 3 | 21 23 26·95 | | | 6 15 | |
| | λ Capricorni | 5.6 | 21 38 14·55 | | | S. 12 5 | |
| 23 | β Aquarii - | 3 | 21 23 26·98 | | | S. 6 15 | |
| | λ Capricorni | 5.6 | 21 38 14·57 | | | 12 5 | |
| | Moon II. L. | - - | 21 37 49·74 | 142·50 | 68·39 | 8 46 9·2 | +729·7 |
| | Moon II. U. | 19·2 | 22 5 55·13 | 138·49 | 67·40 | 6 17 54·3 | 750·5 |
| | ζ Aquarii - | 4 | 22 20 53·80 | | | 0 49 | |
| | η Aquarii - | 4 | 22 27 26·35 | | | S. 0 55 | |
| 24 | ζ Aquarii - | 4 | 22 20 53·83 | | | S. 0 49 | |
| | η Aquarii - | 4 | 22 27 26·38 | | | 0 55 | |
| | Moon II. L. | - - | 22 33 15·54 | 135·02 | 66·54 | 3 46 48·7 | +758·5 |
| | Moon II. U. | 20·2 | 22 59 57·87 | 132·14 | 65·82 | S. 1 15 15·8 | 755·3 |
| | γ Piscium - | 4.5 | 23 9 10·60 | | | N. 2 26 | |
| | ι Piscium * | 4.5 | 23 32 1·28 | | | N. 4 47 | |
| 25 | γ Piscium - | 4.5 | 23 9 10·63 | | | N. 2 26 | |
| | ι Piscium * | 4.5 | 23 32 1·31 | | | 4 47 | |
| | Moon II. L. | - - | 23 26 9·32 | 129·87 | 65·23 | 1 14 38·4 | +742·2 |
| | Moon II. U. | 21·2 | 23 51 57·14 | 128·20 | 64·80 | 3 41 2·6 | 720·5 |
| | B Piscium * | 6 | 0 7 2·01 | | | 7 58 | |
| | d Piscium * | 5.6 | 0 12 40·06 | | | N. 7 20 | |
| 26 | B Piscium * | 6 | 0 7 2·04 | | | N. 7 58 | |
| | d Piscium * | 5.6 | 0 12 40·10 | | | 7 20 | |
| | Moon II. L. | - - | 0 17 28·27 | 127·08 | 64·51 | 6 2 20·8 | +691·3 |
| | Moon II. U. | 22·3 | 0 42 49·06 | 126·47 | 64·34 | 8 17 7·3 | 655·4 |
| | ε Piscium * | 4 | 0 54 56·57 | | | 7 3 | |
| | η Piscium - | 4 | 1 23 14·03 | | | N. 14 33 | |
| 27 | ε Piscium * | 4 | 0 54 56·60 | | | N. 7 3 | |
| | η Piscium - | 4 | 1 23 14·06 | | | 14 33 | |
| | Moon II. L. | - - | 1 8 5·29 | 126·31 | 64·28 | 10 24 5·3 | +613·3 |
| | Moon II. U. | 23·3 | 1 33 21·90 | 126·52 | 64·32 | 12 22 4·6 | +565·7 |
| | β Arietis - - | 3 | 1 46 7·39 | | | 20 3 | |
| | $\theta^1$ Arietis - - | 6 | 2 9 32·95 | | | N. 19 11 | |
| 28 | β Arietis - - | 3 | 1 46 7·43 | | | N. 20 3 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | ☾ in |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | |
| June 28 | $\theta^1$ Arietis - - | 6 | 2 9 32 ·98 | | | N.19 11 | |
| | Moon II. L. | - - | 1 58 42 ·92 | 127 ·03 | 64 ·43 | 14 10 1 ·2 | + |
| | Moon II. U. | 24 ·3 | 2 24 11 ·41 | 127 ·75 | 64 ·59 | 15 46 55 ·6 | |
| | $\pi$ Arietis - - | 5 | 2 40 41 ·06 | | | 16 49 | |
| | $\delta$ Arietis - - | 4 | 3 2 48 ·14 | | | N.19 8 | |
| 29 | $\pi$ Arietis - - | 5 | 2 40 41 ·09 | | | N.16 49 | |
| | $\delta$ Arietis - - | 4 | 3 2 48 ·17 | | | 19 8 | |
| | Moon II. L. | - - | 2 49 49 ·29 | 128 ·58 | 64 ·78 | 17 11 53 ·0 | + |
| | Moon II. U. | 25 ·4 | 3 15 37 ·37 | 129 ·43 | 64 ·98 | 18 24 4 ·3 | |
| | $\eta$ Tauri - - | 3 | 3 38 18 ·62 | | | 23 37 | |
| | $A^1$ Tauri - - | 5 | 3 55 33 ·92 | | | N.21 39 | |
| 30 | Moon II. L. | - - | 3 41 35 ·24 | 130 ·20 | 65 ·15 | N.19 22 45 ·5 | + |
| | Moon II. U. | 26 ·4 | 4 7 41 ·46 | 130 ·80 | 65 ·27 | 20 7 20 ·2 | |
| July 1 | Moon II. L. | - - | 4 33 53 ·56 | 131 ·17 | 65 ·34 | N.20 37 21 ·1 | + |
| | Moon II. U. | 27 ·4 | 5 0 8 ·25 | 131 ·23 | 65 ·33 | 20 52 30 ·2 | + |
| 2 | Moon II. L. | - - | 5 26 21 ·79 | 130 ·97 | 65 ·25 | N.20 52 41 ·4 | — |
| | Moon II. U. | 28 ·5 | 5 52 30 ·14 | 130 ·37 | 65 ·08 | 20 37 59 ·7 | |
| 3 | Moon II. L. | - - | 6 18 29 ·37 | 129 ·46 | 64 ·83 | N.20 8 42 ·8 | — |
| | Moon II. U. | 29 ·5 | 6 44 16 ·09 | 128 ·29 | 64 ·53 | 19 25 18 ·6 | |
| 4 | Moon I. L. | - - | 7 7 39 ·09 | 126 ·98 | 64 ·17 | N.18 28 26 ·5 | — |
| 5 | Moon I. U. | 0 ·8 | 7 32 53 ·96 | 125 ·49 | 63 ·80 | N.17 18 53 ·4 | — |
| | Moon I. L. | - - | 7 57 50 ·73 | 123 ·97 | 63 ·41 | 15 57 33 ·8 | |
| 6 | Moon I. U. | 1 ·9 | 8 22 29 ·52 | 122 ·51 | 63 ·05 | N.14 25 27 ·9 | — |
| | Moon I. L. | - - | 8 46 51 ·55 | 121 ·19 | 62 ·73 | 12 43 38 ·5 | |
| 7 | Moon I. U. | 2 ·9 | 9 10 59 ·01 | 120 ·10 | 62 ·46 | N.10 53 11 ·1 | — |
| | Moon I. L. | - - | 9 34 55 ·02 | 119 ·29 | 62 ·28 | 8 55 13 ·4 | |
| 8 | $\xi$ Leonis - * | 5 | 9 23 36 ·74 | | | N.11 59 | |
| | $o$ Leonis - * | 4 | 9 32 54 ·04 | | | 10 36 | |
| | Moon I. U. | 3 ·9 | 9 58 43 ·53 | 118 ·86 | 62 ·20 | 6 50 53 ·0 | — |
| | Moon I. L. | - - | 10 22 29 ·29 | 118 ·84 | 62 ·23 | 4 41 19 ·3 | |
| | $\rho$ Leonis - * | 4 | 10 24 40 ·39 | | | 10 6 | |
| | 34 Sextantis * | 6 | 10 34 37 ·38 | | | N. 4 24 | |
| 9 | $\rho$ Leonis - * | 4 | 10 24 40 ·39 | | | N.10 6 | |
| | 34 Sextantis * | 6 | 10 34 37 ·37 | | | 4 24 | |
| | Moon I. U. | 5 ·0 | 10 46 17 ·62 | 119 ·30 | 62 ·38 | 2 27 42 ·7 | — |
| | Moon I. L. | - - | 11 10 14 ·48 | 120 ·27 | 62 ·67 | 0 11 16 ·4 | — |
| | $p^1$ Leonis - - | 5.6 | 11 5 51 ·21 | | | 0 46 | |
| | $\tau$ Leonis - - | 4 | 11 19 59 ·89 | | | N. 3 43 | |

| ate. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 845. | | | h m s | s | s | ° ′ ″ | ″ |
| ly 10 | $p^4$ Leonis - - | 5.6 | 11 5 51 ·20 | | | N. 0 46 | |
| | $\tau$ Leonis - - | 4 | 11 19 59 ·88 | | | N. 3 43 | |
| | Moon I. U. | 6 ·0 | 11 34 26 ·21 | 121 ·79 | 63 ·11 | S. 2 6 43 ·2 | —691 ·6 |
| | Moon I. L. | - - | 11 38 59 ·67 | 123 ·89 | 63 ·68 | S. 4 24 54 ·4 | 689 ·0 |
| | $\beta$ Virginis - | 3.4 | 11 42 39 ·52 | | | N. 2 38 | |
| | $\eta$ Virginis - | 3.4 | 12 12 0 ·74 | | | N. 0 12 | |
| 11 | $\beta$ Virginis - | 3.4 | 11 42 39 ·51 | | | N. 2 38 | |
| | $\eta$ Virginis - | 3.4 | 12 12 0 ·72 | | | N. 0 12 | |
| | Moon I. U. | 7 ·0 | 12 24 1 ·86 | 126 ·58 | 64 ·41 | S. 6 41 47 ·5 | —678 ·5 |
| | Moon I. L. | - - | 12 49 39 ·89 | 129 ·86 | 65 ·28 | 8 55 44 ·3 | 659 ·5 |
| | $\psi$ Virginis - | 5.6 | 12 46 20 ·49 | | | 8 42 | |
| | $\theta$ Virginis - | 4.5 | 13 1 58 ·47 | | | S. 4 43 | |
| 12 | $\psi$ Virginis - | 5.6 | 12 46 20 ·48 | | | S. 8 42 | |
| | $\theta$ Virginis - | 4.5 | 13 1 58 ·46 | | | 4 43 | |
| | Moon I. U. | 8 ·0 | 13 16 0 ·69 | 133 ·70 | 66 ·27 | 11 4 56 ·1 | —630 ·8 |
| | Moon I. L. | - - | 13 43 10 ·71 | 138 ·05 | 67 ·37 | 13 7 20 ·2 | 591 ·4 |
| | $m$ Virginis - | 5.6 | 13 33 32 ·00 | | | 7 55 | |
| | $x$ Virginis - | 5.6 | 13 41 30 ·31 | | | S. 17 21 | |
| 13 | $m$ Virginis - | 5.6 | 13 33 31 ·99 | | | S. 7 55 | |
| | $x$ Virginis - | 5.6 | 13 41 30 ·30 | | | 17 21 | |
| | Moon I. U. | 9 ·1 | 14 11 15 ·39 | 142 ·79 | 68 ·55 | 15 0 41 ·8 | —540 ·2 |
| | Moon I. L. | - - | 14 40 18 ·59 | 147 ·77 | 69 ·76 | 16 42 34 ·1 | 476 ·3 |
| | 2 Libræ - - | 6 | 14 15 7 ·85 | | | 11 0 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 22 ·13 | | | S. 15 24 | |
| 14 | 2 Libræ - - | 6 | 14 15 7 ·84 | | | S. 11 0 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 22 ·12 | | | 15 24 | |
| | Moon I. U. | 10 ·1 | 15 10 21 ·96 | 152 ·77 | 70 ·95 | 18 10 21 ·0 | —399 ·2 |
| | Moon I. L. | - - | 15 41 24 ·10 | 157 ·52 | 72 ·06 | 19 21 23 ·2 | 309 ·0 |
| | $\theta$ Libræ - - | 4.5 | 15 45 4 ·16 | | | 16 16 | |
| | $\beta^1$ Scorpii - - | 2 | 15 56 29 ·75 | | | S. 19 23 | |
| 15 | $\theta$ Libræ - - | 4.5 | 15 45 4 ·15 | | | S. 16 16 | |
| | $\beta^1$ Scorpii - | 2 | 15 56 29 ·74 | | | 19 23. | |
| | Moon I. U. | 11 ·2 | 16 13 20 ·17 | 161 ·70 | 73 ·01 | 20 13 8 ·0 | —206 ·6 |
| | Moon I. L. | - - | 16 46 1 ·44 | 165 ·00 | 73 ·74 | 20 43 20 ·7 | — 94 ·0 |
| | $\phi$ Ophiuchi | 4.5 | 16 22 20 ·28 | | | 16 16 | |
| | $\eta$ Ophiuchi | 2.3 | 17 1 33 ·58 | | | S. 15 32 | |
| 16 | $\phi$ Ophiuchi | 4.5 | 16 22 20 ·27 | | | S. 16 16 | |
| | $\eta$ Ophiuchi | 2.3 | 17 1 33 ·58 | | | 15 32 | |
| | Moon I. U. | 12 ·2 | 17 19 15 ·66 | 167 ·15 | 74 ·19 | 20 50 17 ·6 | + 25 ·4 |
| | Moon I. L. | - - | 17 52 47 ·81 | 167 ·97 | 74 ·34 | 20 32 59 ·5 | +147 ·7 |
| | D Ophiuchi | 5 | 17 34 13 ·07 | | | 21 36 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 34 ·00 | | | S. 21 6 | |
| 17 | D Ophiuchi | 5 | 17 34 13 ·07 | | | S. 21 36 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| July 17 | $\mu^1$ Sagittarii | 3.4 | 18 4 34 ·00 | | | S. 21 6 | |
| | Moon I. U. | 13 ·2 | 18 26 21 ·57 | 167 ·42 | 74 ·19 | 19 51 19 ·9 | +268 |
| | Moon I. L. | - - | 18 59 40 ·96 | 165 ·60 | 73 ·73 | 18 46 10 ·1 | 382 |
| | $\pi$ Sagittarii | 4.5 | 19 0 37 ·05 | | | 21 16 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 45 ·23 | | | S. 18 8 | |
| 18 | $\pi$ Sagittarii | 4.5 | 19 0 37 ·05 | | | S. 21 16 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 45 ·23 | | | 18 8 | |
| | Moon I. U. | 14 ·3 | 19 32 31 ·87 | 162 ·73 | 73 ·06 | 17 19 13 ·3 | +485 |
| | $\alpha^2$ Capricorni | 3 | 20 9 31 ·08 | | | 13 1 | |
| | $\rho$ Capricorni | 5 | 20 20 5 ·06 | | | S. 18 19 | |
| 19 | $\alpha^2$ Capricorni | 3 | 20 9 31 ·10 | | | S. 13 1 | |
| | $\rho$ Capricorni | 5 | 20 20 5 ·07 | | | 18 19 | |
| | Moon II. L. | - - | 20 7 7 ·78 | 158 ·94 | 72 ·19 | 15 32 57 ·9 | +574 |
| | Moon II. U. | 15 ·3 | 20 38 30 ·74 | 154 ·84 | 71 ·23 | 13 30 23 ·6 | 648 |
| | $\nu$ Aquarii - | 5 | 21 1 12 ·78 | | | 12 0 | |
| | $\beta$ Aquarii - | 3 | 21 23 27 ·55 | | | S. 6 15 | |
| 20 | $\nu$ Aquarii - | 5 | 21 1 12 ·79 | | | S. 12 0 | |
| | $\beta$ Aquarii - | 3 | 21 23 27 ·57 | | | 6 15 | |
| | Moon II. L. | - - | 21 9 3 ·40 | 150 ·60 | 70 ·23 | 11 14 48 ·0 | +70 |
| | Moon II. U. | 16 ·4 | 21 38 45 ·60 | 146 ·47 | 69 ·24 | 8 49 32 ·3 | 74 |
| | $\theta$ Aquarii - | 4.5 | 22 8 42 ·65 | | | 8 33 | |
| | $\zeta$ Aquarii - | 4 | 22 20 54 ·49 | | | S. 0 49 | |
| 21 | $\theta$ Aquarii - | 4.5 | 22 8 42 ·67 | | | S. 8 33 | |
| | $\zeta$ Aquarii - | 4 | 22 20 54 ·51 | | | 0 49 | |
| | Moon II. L. | - - | 22 7 39 ·79 | 142 ·63 | 68 ·32 | 6 17 52 ·1 | +70 |
| | Moon II. U. | 17 ·4 | 22 35 50 ·26 | 139 ·20 | 67 ·50 | S. 3 42 50 ·7 | 77 |
| | $\beta$ Piscium - | 5 | 22 56 2 ·91 | | | N. 2 59 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 11 ·35 | | | N. 2 26 | |
| 22 | $\beta$ Piscium - | 5 | 22 56 2 ·93 | | | N. 2 59 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 11 ·38 | | | N. 2 26 | |
| | Moon II. L. | - - | 23 3 22 ·48 | 136 ·26 | 66 ·78 | S. 1 7 13 ·8 | +7 |
| | Moon II. U. | 18 ·4 | 23 30 22 ·62 | 133 ·85 | 66 ·19 | N. 1 26 32 ·3 | 7 |
| | $\omega$ Piscium * | 4.5 | 23 51 24 ·46 | | | 6 0 | |
| | B Piscium * | 6 | 0 7 2 ·82 | | | N. 7 58 | |
| 23 | $\omega$ Piscium * | 4.5 | 23 51 24 ·49 | | | N. 6 0 | |
| | B Piscium * | 6 | 0 7 2 ·84 | | | 7 58 | |
| | Moon II. L. | - - | 23 56 56 ·98 | 131 ·97 | 65 ·73 | 3 56 19 ·1 | +7 |
| | Moon II. U. | 19 ·5 | 0 23 11 ·81 | 130 ·59 | 65 ·40 | 6 20 16 ·0 | 7 |
| | $\delta$ Piscium * | 5 | 0 40 41 ·82 | | | 6 45 | |
| | $\epsilon$ Piscium * | 4 | 0 54 57 ·40 | | | N. 7 3 | |
| 24 | $\delta$ Piscium * | 5 | 0 40 41 ·85 | | | N. 6 45 | |
| | $\epsilon$ Piscium * | 4 | 0 54 57 ·43 | | | 7 3 | |
| | Moon II. L. | - - | 0 49 12 ·89 | 129 ·67 | 65 ·17 | N. 8 36 47 ·7 | +6 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 845. | | | h m s | s | s | ° ′ ″ | ″ |
| ly 24 | Moon II. U. | 20·5 | 1 15 5·50 | 129·16 | 65·05 | N.10 44 32·0 | +614·7 |
| | π Piscium * | 6 | 1 28 56·33 | | | 11 21 | |
| | β Arietis - - | 3 | 1 46 8·27 | | | N.20 3 | |
| 25 | π Piscium * | 6 | 1 28 56·36 | | | N.11 21 | |
| | β Arietis - - | 3 | 1 46 8·30 | | | 20 3 | |
| | Moon II. L. | - - | 1 40 54·21 | 129·00 | 65·02 | 12 42 17·3 | +562·1 |
| | Moon II. U. | 21·5 | 2 6 42·70 | 129·12 | 65·04 | 14 29 2·0 | 504·7 |
| | ν Arietis - - | 5.6 | 2 30 4·03 | | | 21 17 | |
| | π Arietis - - | 5 | 2 40 41·90 | | | N.16 49 | |
| 26 | ν Arietis - - | 5.6 | 2 30 4·06 | | | N.21 17 | |
| | π Arietis - - | 5 | 2 40 41·93 | | | 16 49 | |
| | Moon II. L. | - - | 2 32 33·84 | 129·43 | 65·12 | 16 3 52·1 | +443·0 |
| | Moon II. U. | 22·6 | 2 58 29·47 | 129·85 | 65·21 | 17 25 59·9 | 377·7 |
| | g Arietis - - | 5.6 | 3 15 12·50 | | | 24 10 | |
| | η Tauri - - | 3 | 3 38 19·44 | | | N.23 37 | |
| 27 | g Arietis - - | 5.6 | 3 15 12·53 | | | N.24 10 | |
| | η Tauri - - | 3 | 3 38 19·47 | | | 23 37 | |
| | Moon II. L. | - - | 3 24 30·42 | 130·31 | 65·31 | 18 34 45·4 | +309·4 |
| | Moon II. U. | 23·6 | 3 50 36·59 | 130·71 | 65·40 | 19 29 35·3 | 238·6 |
| | $\delta^1$ Tauri - - | 4 | 4 14 2·32 | | | 17 11 | |
| | α Tauri - - | 1 | 4 27 4·22 | | | N.16 12 | |
| 28 | $\delta^1$ Tauri - - | 4 | 4 14 2·35 | | | N.17 11 | |
| | α Tauri - - | 1 | 4 27 4·25 | | | 16 12 | |
| | Moon II. L. | - - | 4 16 46·89 | 130·98 | 65·45 | 20 10 3·5 | +165·8 |
| | Moon II. U. | 24·6 | 4 42 59·46 | 131·07 | 65·45 | 20 35 50·8 | 91·9 |
| | ι Tauri - - | 4.5 | 4 53 52·30 | | | 21 22 | |
| | o Tauri - - | 5 | 5 18 21·78 | | | N.21 48 | |
| 29 | ι Tauri - - | 4.5 | 4 53 52·33 | | | N.21 22 | |
| | o Tauri - - | 5 | 5 18 21·80 | | | 21 48 | |
| | Moon II. L. | - - | 5 9 11·77 | 130·94 | 65·38 | 20 46 47·9 | + 17·6 |
| | Moon II. U. | 25·7 | 5 35 20·93 | 130·55 | 65·25 | 20 42 55·0 | — 56·3 |
| | η Geminor. | 4.5 | 6 5 33·36 | | | 22 33 | |
| | μ Geminor. | 3 | 6 13 36·93 | | | N.22 35 | |
| 30 | Moon II. L. | - - | 6 1 23·86 | 129·90 | 65·05 | N.20 24 20·8 | —129·1 |
| | Moon II. U. | 26·7 | 6 27 17·55 | 129·01 | 64·80 | 19 51 24·4 | 199·8 |
| 31 | Moon II. L. | - - | 6 52 59·31 | 127·92 | 64·48 | N.19 4 35·5 | —267·8 |
| | Moon II. U. | 27·7 | 7 18 27·10 | 126·69 | 64·14 | 18 4 30·6 | 332·3 |
| ug. 1 | Moon II. L. | - - | 7 43 39·52 | 125·37 | 63·78 | N.16 51 56·7 | —392·6 |
| | Moon II. U. | 28·8 | 8 8 36·03 | 124·05 | 63·41 | 15 27 45·8 | 448·3 |
| 2 | Moon II. L. | - - | 8 33 16·94 | 122·78 | 63·08 | N.13 52 57·0 | —498·9 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | |
| Aug. 3 | Moon I. U. | 0·2 | 8 55 37·83 | 121·70 | 62·78 | N. 12 8 33·9 | −544 |
| | Moon I. L. | - - | 9 19 52·40 | 120·76 | 62·54 | 10 15 43·9 | 583 |
| 4 | Moon I. U. | 1·2 | 9 43 57·23 | 120·09 | 62·37 | N. 8 15 37·7 | −610 |
| | Moon I. L. | - - | 10 7 55·85 | 119·74 | 62·29 | 6 9 28·3 | 641 |
| 5 | Moon I. U. | 2·3 | 10 31 52·36 | 119·75 | 62·32 | N. 3 58 31·4 | −664 |
| | Moon I. L. | - - | 10 55 51·46 | 120·17 | 62·47 | N. 1 44 4·9 | 678 |
| 6 | Moon I. U. | 3·3 | 11 19 58·33 | 121·05 | 62·73 | S. 0 32 30·0 | −686 |
| | Moon I. L. | - - | 11 44 18·55 | 122·40 | 63·12 | S. 2 49 49·3 | 686 |
| 7 | ν Leonis- - | 4.5 | 11 29 2·57 | | | N. 0 2 | |
| | β Virginis - | 3.4 | 11 42 39·31 | | | N. 2 38 | |
| | Moon I. U. | 4·3 | 12 8 57·93 | 124·25 | 63·64 | S. 5 6 24·8 | −678 |
| | Moon I. L. | - - | 12 34 2·55 | 126·61 | 64·29 | 7 20 42·1 | 663 |
| | $\gamma^1$ Virginis - | 4 | 12 33 50·30 | | | 0 36 | |
| | ψ Virginis - | 5.6 | 12 46 20·20 | | | S. 8 42 | |
| 8 | $\gamma^1$ Virginis - | 4 | 12 33 50·30 | | | S. 0 36 | |
| | ψ Virginis - | 5.6 | 12 46 20·19 | | | 8 42 | |
| | Moon I. U. | 5·4 | 12 59 38·40 | 129·45 | 65·05 | 9 31 1·9 | −638 |
| | Moon I. L. | - - | 13 25 51·20 | 132·76 | 65·92 | 11 35 37·0 | 605 |
| | α Virginis - | 1 | 13 17 4·43 | | | 10 21 | |
| | m Virginis - | 5.6 | 13 33 31·68 | | | S. 7 55 | |
| 9 | α Virginis - | 1 | 13 17 4·42 | | | S. 10 21 | |
| | m Virginis - | 5.6 | 13 33 31·67 | | | 7 55 | |
| | Moon I. U. | 6·4 | 13 52 46·27 | 136·48 | 66·88 | 13 32 32·4 | −562 |
| | Moon I. L. | - - | 14 20 27·94 | 140·51 | 67·91 | 15 19 45·3 | 508 |
| | λ Virginis - | 4 | 14 10 46·79 | | | 12 40 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 21·78 | | | S. 15 24 | |
| 10 | λ Virginis - | 4 | 14 10 46·77 | | | S. 12 40 | |
| | $\alpha^2$ Libræ - - | 3 | 14 42 21·77 | | | 15 24 | |
| | Moon I. U. | 7·4 | 14 48 59·27 | 144·73 | 68·95 | 16 55 6·7 | −443 |
| | Moon I. L. | - - | 15 18 21·42 | 148·95 | 69·98 | 18 16 23·5 | 367 |
| | $\gamma^1$ Libræ - - | 4.5 | 15 26 54·98 | | | 14 16 | |
| | η Libræ - - | 4.5 | 15 35 25·12 | | | S. 15 11 | |
| 11 | $\gamma^1$ Libræ - - | 4.5 | 15 26 54·96 | | | S. 14 16 | |
| | η Libræ - - | 4.5 | 15 35 25·11 | | | 15 11 | |
| | Moon I. U. | 8·5 | 15 48 33·26 | 152·98 | 70·95 | 19 21 22·8 | −280 |
| | Moon I. L. | - - | 16 19 31·07 | 156·56 | 71·77 | 20 7 59·3 | 183 |
| | ν Scorpii- - | 4 | 16 3 3·28 | | | 19 3 | |
| | α Scorpii - | 1 | 16 19 58·64 | | | S. 26 5 | |
| 12 | ν Scorpii - | 4 | 16 3 3·26 | | | S. 19 3 | |
| | α Scorpii - | 1 | 16 19 58·62 | | | 26 5 | |
| | Moon I. U. | 9·5 | 16 51 8·09 | 159·48 | 72·43 | S. 20 34 22·8 | − 78 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Aug. 12 | Moon I. L. | - - | 17 23 15 ·04 | 161 ·52 | 72 ·88 | S. 20 39 7 ·7 | + 32 ·1 |
| | η Ophiuchi - | 2.3 | 17 1 33 ·35 | | | 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 33 ·73 | | | S. 24 50 | |
| 13 | η Ophiuchi - | 2.3 | 17 1 33 ·34 | | | S. 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 33 ·73 | | | 24 50 | |
| | Moon I. U. | 10 ·5 | 17 55 40 ·57 | 162 ·55 | 73 ·08 | 20 21 20 ·6 | +145 ·9 |
| | Moon I. L. | - - | 18 28 12 ·07 | 162 ·52 | 73 ·04 | 19 40 50 ·3 | 258 ·8 |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 33 ·88 | | | 21 6 | |
| | A.S.C., 2125 | 5 | 18 20 25 ·90 | | | S. 14 39 | |
| 14 | $\mu^1$ Sagittarii | 3.4 | 18 4 33 ·87 | | | S. 21 6 | |
| | A. S.C., 2125 | 5 | 18 20 25 ·89 | | | 14 39 | |
| | Moon I. U. | 11 ·5 | 19 0 37 ·05 | 161 ·48 | 72 ·75 | 18 38 8 ·6 | +367 ·1 |
| | Moon I. L. | - - | 19 32 44 ·08 | 159 ·56 | 72 ·26 | 17 14 32 ·1 | 467 ·3 |
| | $\rho^1$ Sagittarii | 5 | 19 12 45 ·25 | | | 18 8 | |
| | $e^2$ Sagittarii | 5 | 19 33 43 ·30 | | | S. 16 29 | |
| 15 | $\rho^1$ Sagittarii | 5 | 19 12 45 ·24 | | | S. 18 8 | |
| | $e^2$ Sagittarii | 5 | 19 33 43 ·30 | | | 16 29 | |
| | Moon I. U. | 12 ·6 | 20 4 23 ·83 | 156 ·97 | 71 ·62 | 15 31 57 ·1 | +556 ·4 |
| | Moon I. L. | - - | 20 35 29 ·58 | 153 ·94 | 70 ·88 | 13 32 51 ·5 | 632 ·1 |
| | ρ Capricorni | 5 | 20 20 5 ·24 | | | 18 19 | |
| | ε Aquarii - | 4.5 | 20 39 21 ·17 | | | S. 10 3 | |
| 16 | ρ Capricorni | 5 | 20 20 5 ·24 | | | S. 18 19 | |
| | ε Aquarii - | 4.5 | 20 39 21 ·17 | | | 10 3 | |
| | Moon I. U. | 13 ·6 | 21 5 57 ·43 | 150 ·69 | 70 ·08 | 11 20 6 ·6 | +692 ·8 |
| | Moon I. L. | - - | 21 35 46 ·07 | 147 ·43 | 69 ·29 | 8 56 46 ·1 | 737 ·9 |
| | β Aquarii - | 3 | 21 23 27 ·87 | | | 6 15 | |
| | 30 Aquarii - | 5.6 | 21 55 11 ·02 | | | S. 7 16 | |
| 17 | β Aquarii - | 3 | 21 23 27 ·88 | | | S. 6 15 | |
| | 30 Aquarii - | 5.6 | 21 55 11 ·03 | | | 7 16 | |
| | Moon II. U. | 14 ·7 | 22 7 13 ·51 | 144 ·21 | 68 ·54 | 6 25 57 ·9 | +767 ·5 |
| | ζ Aquarii - | 4 | 22 20 54 ·94 | | | 0 48 | |
| | η Aquarii - | 4 | 22 27 27 ·51 | | | S. 0 55 | |
| 18 | ζ Aquarii - | 4 | 22 20 54 ·95 | | | S. 0 48 | |
| | η Aquarii - | 4 | 22 27 27 ·52 | | | 0 55 | |
| | Moon II. L. | - - | 22 35 46 ·90 | 141 ·41 | 67 ·86 | 3 50 46 ·2 | +782 ·0 |
| | Moon II. U. | 15 ·7 | 23 3 48 ·69 | 138 ·96 | 67 ·27 | S. 1 14 5 ·4 | 782 ·6 |
| | $\kappa^1$ Piscium - | 5.6 | 23 19 3 ·27 | | | N. 0 25 | |
| | ι Piscium * | 4.5 | 23 32 2 ·64 | | | N. 4 48 | |
| 19 | $\kappa^1$ Piscium - | 5.6 | 23 19 3 ·28 | | | N. 0 25 | |
| | ι Piscium * | 4.5 | 23 32 2 ·66 | | | 4 48 | |
| | Moon II. L. | - - | 23 31 23 ·44 | 136 ·91 | 66 ·78 | 1 21 23 ·9 | +770 ·3 |
| | Moon II. U. | 16 ·8 | 23 58 36 ·05 | 135 ·27 | 66 ·39 | 3 53 16 ·0 | +746 ·6 |
| | *d* Piscium * | 5.6 | 0 12 41 ·54 | | | N. 7 20 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Aug. 19 | δ Piscium * | 5 | 0 40 42·51 | | | N. 6 45 | |
| 20 | *d* Piscium * | 5.6 | 0 12 41·56 | | | N. 7 20 | |
| | δ Piscium * | 5 | 0 40 42·53 | | | 6 45 | |
| | Moon II. L. | - - | 0 25 31·39 | 134·02 | 66·11 | 6 19 22·6 | +712 |
| | Moon II. U. | 17·8 | 0 52 13·98 | 133·14 | 65·92 | 8 37 51·7 | 670 |
| | η Piscium - | 4 | 1 23 15·67 | | | N. 14 33 | |
| 21 | η Piscium - | 4 | 1 23 15·69 | | | N. 14 33 | |
| | Moon II. L. | - - | 1 18 47·89 | 132·57 | 65·81 | 10 47 6·7 | +620 |
| | Moon II. U. | 18·9 | 1 45 16·57 | 132·25 | 65·76 | 12 45 45·6 | 564 |
| | θ¹ Arietis - - | 6 | 2 9 34·66 | | | 19 11 | |
| | ψ Arietis - - | 6 | 2 22 22·37 | | | N. 17 1 | |
| 22 | θ¹ Arietis - - | 6 | 2 9 34·69 | | | N. 19 11 | |
| | ψ Arietis - - | 6 | 2 22 22·40 | | | 17 1 | |
| | Moon II. L. | - - | 2 11 42·75 | 132·14 | 65·75 | 14 32 39·8 | +503 |
| | Moon II. U. | 19·9 | 2 38 8·31 | 132·14 | 65·78 | 16 6 52·6 | 438 |
| | ε Arietis - - | 5 | 2 50 25·19 | | | 20 43 | |
| | δ Arietis - - | 4 | 3 2 49·84 | | | N. 19 8 | |
| 23 | ε Arietis - - | 5 | 2 50 25·22 | | | N. 20 43 | |
| | δ Arietis - - | 4 | 3 2 49·87 | | | 19 8 | |
| | Moon II. L. | - - | 3 4 34·29 | 132·19 | 65·80 | 17 27 38·0 | +369 |
| | Moon II. U. | 20·9 | 3 31 0·92 | 132·24 | 65·83 | 18 34 19·4 | 297 |
| | A¹ Tauri - - | 5 | 3 55 35·60 | | | 21 39 | |
| | δ¹ Tauri - - | 4 | 4 14 3·15 | | | N. 17 11 | |
| 24 | A¹ Tauri - - | 5 | 3 55 35·63 | | | N. 21 39 | |
| | δ¹ Tauri - - | 4 | 4 14 3·17 | | | 17 11 | |
| | Moon II. L. | - - | 3 57 27·66 | 132·20 | 65·82 | 19 26 31·0 | +224 |
| | Moon II. U. | 22·0 | 4 23 53·25 | 132·04 | 65·78 | 20 3 55·3 | 149 |
| | *i* Tauri - - | 5.6 | 4 42 21·11 | | | 18 34 | |
| | ι Tauri - - | 4.5 | 4 53 53·12 | | | N. 21 22 | |
| 25 | *i* Tauri - - | 5.6 | 4 42 21·14 | | | N. 18 34 | |
| | ι Tauri - - | 4.5 | 4 53 53·15 | | | 21 22 | |
| | Moon II. L. | - - | 4 50 15·99 | 131·72 | 65·68 | 20 26 23·5 | + 75 |
| | Moon II. U. | 23·0 | 5 16 33·75 | 131·21 | 65·54 | 20 33 55·6 | + 0 |
| | ζ Tauri - - | 3.4 | 5 28 25·85 | | | 21 3 | |
| | χ³ Orionis - | 5 | 5 54 45·63 | | | N. 20 8 | |
| 26 | ζ Tauri - - | 3.4 | 5 28 25·88 | | | N. 21 3 | |
| | χ³ Orionis - | 5 | 5 54 45·66 | | | 20 8 | |
| | Moon II. L. | - - | 5 42 44·23 | 130·51 | 65·34 | 20 26 39·8 | − 72 |
| | Moon II. U. | 24·0 | 6 8 45·23 | 129·63 | 65·09 | 20 4 53·2 | −144 |
| | ν Geminor. | 5 | 6 19 48·12 | | | 20 18 | |
| | ε Geminor. | 3 | 6 34 26·27 | | | N. 25 17 | |
| 27 | ν Geminor. | 5 | 6 19 48·15 | | | N. 20 18 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Aug. 27 | ε Geminor. | 3 | 6 34 26 ·30 | | | N. 25 17 | |
| | Moon II. L. | - - | 6 34 34 ·78 | 128 ·60 | 64 ·79 | 19 28 59 ·5 | —213 ·9 |
| | Moon II. U. | 25 ·1 | 7 0 11 ·31 | 127 ·47 | 64 ·46 | 18 39 30 ·4 | 280 ·4 |
| | δ Geminor. | 3.4 | 7 10 54 ·08 | | | 22 16 | |
| | k Geminor. | 5 | 7 24 47 ·64 | | | N. 16 9 | |
| 28 | Moon II. L. | - - | 7 25 33 ·88 | 126 ·28 | 64 ·12 | N. 17 37 4 ·4 | —343 ·4 |
| | Moon II. U. | 26 ·1 | 7 50 42 ·11 | 125 ·09 | 63 ·78 | 16 22 25 ·4 | 402 ·4 |
| 29 | Moon II. L. | - - | 8 15 36 ·37 | 123 ·96 | 63 ·45 | N. 14 56 23 ·7 | —457 ·1 |
| | Moon II. U. | 27 ·1 | 8 40 17 ·67 | 122 ·95 | 63 ·15 | 13 19 54 ·3 | 507 ·0 |
| 30 | Moon II. L. | - - | 9 4 47 ·84 | 122 ·11 | 62 ·90 | N. 11 33 57 ·4 | —551 ·6 |
| | Moon II. U. | 28 ·2 | 9 29 9 ·26 | 121 ·50 | 62 ·72 | 9 39 37 ·2 | 590 ·8 |
| 31 | Moon II. L. | - - | 9 53 24 ·92 | 121 ·16 | 62 ·62 | N. 7 38 3 ·2 | —623 ·9 |
| | Moon II. U. | 29 ·2 | 10 17 38 ·43 | 121 ·14 | 62 ·61 | 5 30 29 ·3 | 650 ·7 |
| Sept. 1 | Moon II. L. | - - | 10 41 53 ·73 | 121 ·47 | 62 ·69 | N. 3 18 13 ·3 | —670 ·8 |
| 2 | Moon I. U. | 0 ·6 | 11 4 9 ·48 | 122 ·14 | 62 ·88 | N. 1 2 38 ·8 | —683 ·8 |
| | Moon I. L. | - - | 11 28 41 ·31 | 123 ·23 | 63 ·19 | S. 1 14 46 ·4 | 689 ·1 |
| 3 | Moon I. U. | 1 ·6 | 11 53 28 ·77 | 124 ·75 | 63 ·61 | S. 3 32 28 ·5 | —686 ·5 |
| | Moon I. L. | - - | 12 18 36 ·87 | 126 ·68 | 64 ·14 | 5 48 49 ·0 | 675 ·4 |
| 4 | Moon I. U. | 2 ·6 | 12 44 10 ·59 | 129 ·01 | 64 ·77 | S. 8 2 3 ·5 | —655 ·5 |
| | Moon I. L. | - - | 13 10 14 ·66 | 131 ·73 | 65 ·50 | 10 10 22 ·3 | 626 ·0 |
| 5 | Moon I. U. | 3 ·7 | 13 36 53 ·41 | 134 ·78 | 66 ·31 | S. 12 11 49 ·6 | —586 ·9 |
| | Moon I. L. | - - | 14 4 10 ·39 | 138 ·09 | 67 ·17 | 14 4 27 ·2 | 537 ·7 |
| 6 | λ Virginis - | 4 | 14 10 46 ·43 | | | S. 12 40 | |
| | Moon I. U. | 4 ·7 | 14 32 8 ·09 | 141 ·55 | 68 ·06 | 15 46 12 ·6 | —478 ·2 |
| | Moon I. L. | - - | 15 0 47 ·55 | 145 ·02 | 68 ·93 | 17 15 3 ·4 | 408 ·6 |
| | $\alpha^2$ Libræ - - | 3 | 14 42 21 ·38 | | | 15 24 | |
| | $\iota^1$ Libræ - - | 5.6 | 15 3 26 ·58 | | | S. 19 12 | |
| 7 | $\alpha^2$ Libræ - - | 3 | 14 42 21 ·36 | | | S. 15 24 | |
| | $\iota^1$ Libræ - - | 5.6 | 15 3 26 ·57 | | | 19 12 | |
| | Moon I. U. | 5 ·8 | 15 30 8 ·11 | 148 ·37 | 69 ·76 | 18 29 0 ·3 | —329 ·3 |
| | Moon I. L. | - - | 16 0 7 ·12 | 151 ·40 | 70 ·49 | 19 26 11 ·2 | 241 ·1 |
| | $\beta^1$ Scorpii - - | 2 | 15 56 28 ·99 | | | 19 23 | |
| | ν Scorpii - - | 4 | 16 3 2 ·83 | | | S. 19 3 | |
| 8 | $\beta^1$ Scorpii - - | 2 | 15 56 28 ·97 | | | S. 19 23 | |
| | ν Scorpii - - | 4 | 16 3 2 ·81 | | | 19 3 | |
| | Moon I. U. | 6 ·8 | 16 30 39 ·77 | 153 ·94 | 71 ·10 | 20 4 56 ·9 | —145 ·4 |
| | Moon I. L. | - - | 17 1 39 ·25 | 155 ·85 | 71 ·55 | 20 23 57 ·8 | — 44 ·0 |
| | η Ophiuchi | 2.3 | 17 1 32 ·92 | | | S. 15 32 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Sept. 9 | θ Ophiuchi - | 3.4 | 17 12 33 ·29 | | | S. 24 50 | |
| | η Ophiuchi - | 2.3 | 17 1 32 ·90 | | | S. 15 32 | |
| | θ Ophiuchi - | 3.4 | 17 12 33 ·28 | | | 24 50 | |
| | Moon I. U. | 7 ·9 | 17 32 57 ·19 | 157 ·00 | 71 ·80 | 20 22 18 ·6 | + 60 ·9 |
| | Moon I. L. | - - | 18 4 24 ·10 | 157 ·34 | 71 ·85 | 19 59 33 ·7 | 166 ·5 |
| | 4 Sagittarii | 5 | 17 50 23 ·57 | | | 23 48 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 33 ·49 | | | S. 21 6 | |
| 10 | 4 Sagittarii | 5 | 17 50 23 ·55 | | | S. 23 48 | |
| | $\mu^1$ Sagittarii | 3.4 | 18 4 33 ·47 | | | 21 6 | |
| | Moon I. U. | 8 ·9 | 18 35 50 ·28 | 156 ·89 | 71 ·71 | 19 15 50 ·0 | +270 ·2 |
| | Moon I. L. | - - | 19 7 6 ·56 | 155 ·71 | 71 ·40 | 18 11 48 ·8 | 369 ·0 |
| | o Sagittarii | 4.5 | 18 55 27 ·56 | | | 21 58 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 44 ·96 | | | S. 18 8 | |
| 11 | o Sagittarii | 4.5 | 18 55 27 ·54 | | | S. 21 58 | |
| | $\rho^1$ Sagittarii | 5 | 19 12 44 ·94 | | | 18 8 | |
| | Moon I. U. | 9 ·9 | 19 38 5 ·07 | 153 ·95 | 70 ·94 | 16 48 42 ·8 | +460 ·6 |
| | Moon I. L. | - - | 20 8 39 ·73 | 151 ·77 | 70 ·37 | 15 8 13 ·2 | 542 ·6 |
| | $\alpha^2$ Capricorni | 3 | 20 9 31 ·05 | | | 13 1 | |
| | ρ Capricorni | 5 | 20 20 5 ·08 | | | S. 18 19 | |
| 12 | $\alpha^2$ Capricorni | 3 | 20 9 31 ·04 | | | S. 13 1 | |
| | ρ Capricorni | 5 | 20 20 5 ·07 | | | 18 19 | |
| | Moon I. U. | 11 ·0 | 20 38 46 ·54 | 149 ·34 | 69 ·74 | 13 12 25 ·5 | +613 ·3 |
| | Moon I. L. | - - | 21 8 23 ·49 | 146 ·83 | 69 ·10 | 11 3 43 ·6 | 671 ·5 |
| | ν Aquarii - | 5 | 21 1 12 ·98 | | | 12 0 | |
| | β Aquarii - | 3 | 21 23 27 ·85 | | | S. 6 15 | |
| 13 | ν Aquarii - | 5 | 21 1 12 ·97 | | | S. 12 0 | |
| | β Aquarii - | 3 | 21 23 27 ·84 | | | 6 15 | |
| | Moon I. U. | 12 ·0 | 21 37 30 ·59 | 144 ·38 | 68 ·47 | 8 44 41 ·6 | +716 ·5 |
| | Moon I. L. | - - | 22 6 9 ·33 | 142 ·12 | 67 ·89 | 6 18 2 ·5 | 747 ·8 |
| | θ Aquarii - | 4.5 | 22 8 43 ·16 | | | 8 33 | |
| | ζ Aquarii - | 4 | 22 20 55 ·05 | | | S. 0 48 | |
| 14 | θ Aquarii - | 4.5 | 22 8 43 ·16 | | | S. 8 33 | |
| | ζ Aquarii - | 4 | 22 20 55 ·05 | | | 0 48 | |
| | Moon I. U. | 13 ·0 | 22 34 22 ·40 | 140 ·11 | 67 ·38 | 3 46 29 ·7 | +765 ·5 |
| | Moon I. L. | - - | 23 2 13 ·30 | 138 ·43 | 66 ·95 | S. 1 12 44 ·2 | 769 ·9 |
| | β Piscium - | 5 | 22 56 3 ·62 | | | N. 3 0 | |
| | γ Piscium - | 4.5 | 23 9 12 ·13 | | | N. 2 27 | |
| 15 | β Piscium - | 5 | 22 56 3 ·62 | | | N. 3 0 | |
| | γ Piscium - | 4.5 | 23 9 12 ·13 | | | 2 27 | |
| | Moon I. U. | 14 ·1 | 23 29 45 ·97 | 137 ·08 | 66 ·62 | 1 20 38 ·6 | +761 ·8 |
| | ω Piscium * | 4.5 | 23 51 25 ·41 | | | 6 1 | |
| | d Piscium * | 5.6 | 0 12 41 ·92 | | | N. 7 20 | |

| te. | Name. | Mag-nitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 45. | | | h m s | s | s | ° ′ ″ | ″ |
| t.16 | *w* Piscium * | 4.5 | 23 51 25 ·42 | | | N. 6 1 | |
| | *d* Piscium * | 5.6 | 0 12 41 ·93 | | | 7 20 | |
| | Moon II. L. | - - | 23 59 17 ·18 | 136 ·02 | 66 ·37 | 3 51 11 ·7 | +741 ·9 |
| | Moon II. U. | 15 ·1 | 0 26 25 ·01 | 135 ·33 | 66 ·22 | 6 16 40 ·1 | 711 ·2 |
| | δ Piscium * | 5 | 0 40 42 ·97 | | | 6 45 | |
| | ε Piscium * | 4 | 0 54 58 ·61 | | | N. 7 4 | |
| 17 | δ Piscium * | 5 | 0 40 42 ·98 | | | N. 6 45 | |
| | ε Piscium * | 4 | 0 54 58 ·62 | | | 7 4 | |
| | Moon II. L. | - - | 0 53 26 ·18 | 134 ·91 | 66 ·13 | 8 35 0 ·7 | +670 ·7 |
| | Moon II. U. | 16 ·2 | 1 20 23 ·58 | 134 ·69 | 66 ·12 | 10 44 23 ·1 | 621 ·7 |
| | β Arietis - | 3 | 1 46 9 ·70 | | | N.20 3 | |
| 18 | β Arietis - - | 3 | 1 46 9 ·72 | | | N.20 3 | |
| | Moon II. L. | - - | 1 47 19 ·36 | 134 ·62 | 66 ·14 | 12 43 12 ·3 | +565 ·3 |
| | Moon II. U. | 17 ·2 | 2 14 14 ·89 | 134 ·64 | 66 ·18 | 14 30 6 ·5 | 502 ·8 |
| | π Arietis - - | 5 | 2 40 43 ·45 | | | 16 49 | |
| | ε Arietis - - | 5 | 2 50 25 ·91 | | | N.20 43 | |
| 19 | π Arietis - - | 5 | 2 40 43 ·47 | | | N.16 49 | |
| | ε Arietis - - | 5 | 2 50 25 ·94 | | | 20 43 | |
| | Moon II. L. | - - | 2 41 10 ·73 | 134 ·66 | 66 ·23 | 16 3 59 ·0 | +435 ·2 |
| | Moon II. U. | 18 ·2 | 3 8 6 ·54 | 134 ·63 | 66 ·26 | 17 23 56 ·8 | 363 ·9 |
| | η Tauri - - | 3 | 3 38 21 ·14 | | | N.23 37 | |
| 20 | η Tauri - - | 3 | 3 38 21 ·16 | | | N.23 37 | |
| | Moon II. L. | - - | 3 35 1 ·30 | 134 ·47 | 66 ·26 | 18 29 20 ·6 | +289 ·8 |
| | Moon II. U. | 19 ·3 | 4 1 53 ·28 | 134 ·16 | 66 ·21 | 19 19 44 ·4 | 214 ·0 |
| | α Tauri - - | 1 | 4 27 5 ·86 | | | 16 12 | |
| | *i* Tauri - - | 5.6 | 4 42 21 ·93 | | | N.18 34 | |
| 21 | α Tauri - - | 1 | 4 27 5 ·88 | | | N.16 12 | |
| | *i* Tauri - - | 5.6 | 4 42 21 ·96 | | | 18 34 | |
| | Moon II. L. | - - | 4 28 40 ·35 | 133 ·65 | 66 ·11 | 19 54 54 ·4 | +137 ·6 |
| | Moon II. U. | 20 ·3 | 4 55 20 ·05 | 132 ·93 | 65 ·95 | 20 14 48 ·4 | + 61 ·5 |
| | *o* Tauri - - | 5 | 5 18 23 ·44 | | | 21 48 | |
| | ζ Tauri - - | 3.4 | 5 28 26 ·69 | | | N.21 3 | |
| 22 | *o* Tauri - - | 5 | 5 18 23 ·47 | | | N.21 48 | |
| | ζ Tauri - - | 3.4 | 5 28 26 ·72 | | | 21 3 | |
| | Moon II. L. | - - | 5 21 49 ·95 | 132 ·02 | 65 ·73 | 20 19 34 ·1 | — 13 ·6 |
| | Moon II. U. | 21 ·3 | 5 48 7 ·70 | 130 ·92 | 65 ·45 | 20 9 29 ·5 | 86 ·8 |
| | μ Geminor. | 3 | 6 13 38 ·48 | | | 22 35 | |
| | γ Geminor. | 3 | 6 28 48 ·55 | | | N.16 32 | |
| 23 | μ Geminor. | 3 | 6 13 38 ·52 | | | N.22 35 | |
| | γ Geminor. | 3 | 6 28 48 ·58 | | | 16 32 | |
| | Moon II. L. | - - | 6 14 11 ·38 | 129 ·68 | 65 ·13 | 19 44 59 ·3 | —157 ·7 |
| | Moon II. U. | 22 ·4 | 6 39 59 ·60 | 128 ·35 | 64 ·78 | 19 6 35 ·6 | —225 ·7 |
| | ζ Geminor. | 4 | 6 54 58 ·04 | | | N.20 47 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Decl. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ′ |
| Sept. 23 | δ Geminor. | 3.4 | 7 10 54 ·83 | | | N. 22 16 | |
| 24 | ζ Geminor. | 4 | 6 54 58 ·07 | | | N. 20 47 | |
| | δ Geminor. | 3.4 | 7 10 54 ·86 | | | 22 16 | |
| | Moon II. L. | - - | 7 5 31 ·59 | 126 ·98 | 64 ·41 | 18 14 56 ·0 | —290 |
| | Moon II. U. | 23 ·4 | 7 30 47 ·30 | 125 ·65 | 64 ·04 | 17 10 42 ·3 | 351 |
| | ζ Cancri - - | 6 | 8 3 21 ·45 | | | N. 18 7 | |
| 25 | ζ Cancri - - | 6 | 8 3 21 ·48 | | | N. 18 7 | |
| | Moon II. L. | - - | 7 55 47 ·44 | 124 ·40 | 63 ·69 | 15 54 40 ·3 | —409 |
| | Moon II. U. | 24 ·4 | 8 20 33 ·47 | 123 ·30 | 63 ·38 | 14 27 38 ·9 | 461 |
| | δ Cancri - - | 4.5 | 8 35 54 ·74 | | | 18 43 | |
| | $\alpha^2$ Cancri - * | 5 | 8 50 2 ·63 | | | N. 12 27 | |
| 26 | δ Cancri - - | 4.5 | 8 35 54 ·76 | | | N. 18 43 | |
| | $\alpha^2$ Cancri - * | 5 | 8 50 2 ·65 | | | 12 27 | |
| | Moon II. L. | - - | 8 45 7 ·50 | 122 ·41 | 63 ·10 | 12 50 30 ·4 | —305 |
| | Moon II. U. | 25 ·5 | 9 9 32 ·31 | 121 ·77 | 62 ·90 | 11 4 9 ·9 | 353 |
| | ξ Leonis - * | 5 | 9 23 37 ·55 | | | 11 59 | |
| | o Leonis - * | 4 | 9 32 54 ·77 | | | N. 10 35 | |
| 27 | Moon II. L. | - - | 9 33 51 ·19 | 121 ·43 | 62 ·77 | N. 9 9 36 ·6 | —59 |
| | Moon II. U. | 26 ·5 | 9 58 8 ·03 | 121 ·43 | 62 ·74 | 7 7 54 ·0 | 62 |
| 28 | Moon II. L. | - - | 10 22 27 ·03 | 121 ·80 | 62 ·81 | N. 5 0 10 ·3 | —65 |
| | Moon II. U. | 27 ·5 | 10 46 52 ·76 | 122 ·56 | 62 ·99 | 2 47 39 ·8 | 67 |
| 29 | Moon II. L. | - - | 11 11 30 ·06 | 123 ·73 | 63 ·28 | N. 0 31 44 ·3 | —68 |
| | Moon II. U. | 28 ·5 | 11 36 23 ·91 | 125 ·31 | 63 ·68 | S. 1 46 6 ·6 | 69 |
| 30 | Moon II. L. | - - | 12 1 39 ·24 | 127 ·31 | 64 ·20 | S. 4 4 15 ·6 | —68 |
| | Moon II. U. | 29 ·6 | 12 27 21 ·00 | 129 ·71 | 64 ·82 | 6 20 56 ·1 | 67 |
| Oct. 1 | Moon I. L. | - - | 12 51 22 ·67 | 132 ·34 | 65 ·53 | S. 8 34 12 ·7 | —65 |
| 2 | Moon I. U. | 1 ·0 | 13 18 8 ·80 | 135 ·39 | 66 ·33 | S. 10 42 3 ·1 | —62 |
| | Moon I. L. | - - | 13 45 32 ·98 | 138 ·67 | 67 ·17 | 12 42 17 ·5 | 57 |
| 3 | Moon I. U. | 2 ·1 | 14 13 37 ·28 | 142 ·06 | 68 ·04 | S. 14 32 42 ·9 | —52 |
| | Moon I. L. | - - | 14 42 22 ·22 | 145 ·42 | 68 ·90 | 16 11 5 ·8 | 45 |
| 4 | Moon I. U. | 3 ·1 | 15 11 46 ·59 | 148 ·60 | 69 ·70 | S. 17 35 16 ·4 | —38 |
| | Moon I. L. | - - | 15 41 47 ·12 | 151 ·41 | 70 ·40 | 18 43 14 ·8 | 29 |
| 5 | θ Libræ - - | 4.5 | 15 45 3 ·00 | | | S. 16 16 | |
| | $\beta^1$ Scorpii - | 2 | 15 56 28 ·57 | | | 19 23 | |
| | Moon I. U. | 4 ·2 | 16 12 18 ·38 | 153 ·70 | 70 ·98 | 19 33 16 ·5 | —21 |
| | Moon I. L. | - - | 16 43 13 ·17 | 155 ·31 | 71 ·38 | 20 3 58 ·2 | —1 |
| | m Scorpii - - | 5 | 16 32 39 ·69 | | | 17 26 | |
| | η Ophiuchi - | 2.3 | 17 1 32 ·45 | | | S. 15 32 | |

| ...te. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 15. | | | h m s | s | s | ° ′ ″ | ″ |
| 6 | *m* Scorpii - | 5 | 16 32 39 ·67 | | | S. 17 26 | |
| | η Ophiuchi - | 2.3 | 17 1 32 ·44 | | | 15 32 | |
| | Moon I. U. | 5 ·2 | 17 14 22 ·68 | 156 ·14 | 71 ·58 | 20 14 24 ·2 | — 0 ·6 |
| | Moon I. L. | - - | 17 45 37 ·27 | 156 ·16 | 71 ·59 | 20 4 8 ·9 | +103 ·0 |
| | D Ophiuchi - | 5 | 17 34 11 ·96 | | | 21 36 | |
| | $\mu^1$ Sagittarii - | 3.4 | 18 4 33 ·00 | | | S. 21 6 | |
| 7 | D Ophiuchi - | 5 | 17 34 11 ·94 | | | S. 21 36 | |
| | $\mu^1$ Sagittarii - | 3.4 | 18 4 32 ·98 | | | 21 6 | |
| | Moon I. U. | 6 ·2 | 18 16 47 ·36 | 155 ·39 | 71 ·40 | 19 33 18 ·8 | +204 ·8 |
| | Moon I. L. | - - | 18 47 44 ·03 | 153 ·95 | 71 ·04 | 18 42 32 ·0 | 302 ·1 |
| | $\xi^2$ Sagittarii - | 5 | 18 48 32 ·25 | | | 21 18 | |
| | π Sagittarii - | 4.5 | 19 0 36 ·24 | | | S. 21 16 | |
| 8 | $\xi^2$ Sagittarii - | 5 | 18 48 32 ·23 | | | S. 21 18 | |
| | π Sagittarii - | 4.5 | 19 0 36 ·22 | | | 21 16 | |
| | Moon I. U. | 7 ·3 | 19 18 19 ·92 | 151 ·96 | 70 ·54 | 17 32 55 ·2 | +392 ·8 |
| | Moon I. L. | - - | 19 48 29 ·48 | 149 ·59 | 69 ·95 | 16 5 58 ·7 | 475 ·1 |
| | $e^2$ Sagittarii - | 5 | 19 33 42 ·59 | | | 16 29 | |
| | $\alpha^2$ Capricorni | 3 | 20 9 30 ·66 | | | S. 13 1 | |
| 9 | $e^2$ Sagittarii - | 5 | 19 33 42 ·57 | | | S. 16 29 | |
| | $\alpha^2$ Capricorni | 3 | 20 9 30 ·64 | | | 13 1 | |
| | Moon I. U. | 8 ·3 | 20 18 9 ·38 | 147 ·04 | 69 ·30 | 14 23 31 ·9 | +547 ·6 |
| | Moon I. L. | - - | 20 47 18 ·32 | 144 ·46 | 68 ·63 | 12 27 38 ·4 | 609 ·4 |
| | μ Aquarii - | 4.5 | 20 44 21 ·16 | | | 9 33 | |
| | ν Aquarii - | 5 | 21 1 12 ·65 | | | S. 12 0 | |
| 10 | μ Aquarii - | 4.5 | 20 44 21 ·14 | | | S. 9 33 | |
| | ν Aquarii - | 5 | 21 1 12 ·64 | | | 12 0 | |
| | Moon I. U. | 9 ·3 | 21 15 56 ·87 | 142 ·00 | 67 ·99 | 10 20 30 ·3 | +660 ·0 |
| | Moon I. L. | - - | 21 44 7 ·18 | 139 ·77 | 67 ·40 | 8 4 25 ·0 | 698 ·9 |
| | ξ Aquarii - | 5 | 21 29 33 ·56 | | | 8 32 | |
| | 30 Aquarii - | 5.6 | 21 55 10 ·86 | | | S. 7 16 | |
| 11 | ξ Aquarii - | 5 | 21 29 33 ·55 | | | S. 8 32 | |
| | 30 Aquarii - | 5.6 | 21 55 10 ·85 | | | 7 16 | |
| | Moon I. U. | 10 ·4 | 22 11 52 ·55 | 137 ·85 | 66 ·88 | 5 41 42 ·9 | +726 ·1 |
| | Moon I. L. | - - | 22 39 17 ·06 | 136 ·30 | 66 ·45 | 3 14 44 ·0 | 741 ·8 |
| | η Aquarii - | 4 | 22 27 27 ·48 | | | 0 55 | |
| | λ Aquarii - | 4 | 22 44 35 ·69 | | | S. 8 24 | |
| 12 | η Aquarii - | 4 | 22 27 27 ·48 | | | S. 0 55 | |
| | λ Aquarii - | 4 | 22 44 35 ·68 | | | 8 24 | |
| | Moon I. U. | 11 ·4 | 23 6 25 ·21 | 135 ·13 | 66 ·13 | S. 0 45 46 ·4 | +745 ·9 |
| | Moon I. L. | - - | 23 33 21 ·64 | 134 ·34 | 65 ·90 | N. 1 42 54 ·1 | +739 ·0 |
| | $\kappa^1$ Piscium - | 5.6 | 23 19 3 ·48 | | | 0 25 | |
| | ι Piscium * | 4.5 | 23 32 2 ·94 | | | N. 4 48 | |
| 13 | $\kappa^1$ Piscium - | 5.6 | 23 19 3 ·49 | | | N. 0 25 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. ☾'s D. in 1 h. of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | |
| Oct. 13 | ι Piscium * | 4.5 | 23 32 2 ·94 | | | N. 4 48 | |
| | Moon I. U. | 12 ·4 | 0 0 10 ·84 | 133 ·92 | 65 ·77 | 4 9 6 ·7 | +72 |
| | Moon I. L. | - - | 0 26 56 ·90 | 133 ·81 | 65 ·73 | 6 30 45 ·3 | 69 |
| | *d* Piscium * | 5.6 | 0 12 42 ·04 | | | 7 20 | |
| | δ Piscium * | 5 | 0 40 43 ·15 | | | N. 6 45 | |
| 14 | *d* Piscium * | 5.6 | 0 12 42 ·04 | | | N. 7 20 | |
| | δ Piscium * | 5 | 0 40 43 ·16 | | | 6 45 | |
| | Moon I. U. | 13 ·5 | 0 53 43 ·29 | 133 ·96 | 65 ·76 | 8 45 51 ·9 | +656 |
| | Moon II. L. | - - | 1 22 44 ·38 | 134 ·32 | 65 ·85 | 10 52 35 ·2 | 609 |
| | η Piscium - | 4 | 1 23 16 ·54 | | | 14 33 | |
| | *o* Piscium * | 5 | 1 37 17 ·31 | | | N. 8 23 | |
| 15 | η Piscium - | 4 | 1 23 16 ·54 | | | N.14 33 | |
| | *o* Piscium * | 5 | 1 37 17 ·32 | | | 8 23 | |
| | Moon II. U. | 14 ·5 | 1 49 38 ·80 | 134 ·76 | 65 ·98 | 12 49 15 ·1 | +555 |
| | θ¹ Arietis - - | 6 | 2 9 35 ·76 | | | 19 11 | |
| | ψ Arietis - - | 6 | 2 22 23 ·52 | | | N.17 1 | |
| 16 | θ¹ Arietis - - | 6 | 2 9 35 ·78 | | | N.19 11 | |
| | ψ Arietis - - | 6 | 2 22 23 ·53 | | | 17 1 | |
| | Moon II. L. | - - | 2 16 38 ·76 | 135 ·23 | 66 ·11 | 14 34 22 ·0 | +494 |
| | Moon II. U. | 15 ·5 | 2 43 43 ·91 | 135 ·61 | 66 ·24 | 16 6 39 ·6 | 427 |
| | δ Arietis - - | 4 | 3 2 51 ·16 | | | N.19 8 | |
| 17 | δ Arietis - - | 4 | 3 2 51 ·17 | | | N.19 8 | |
| | Moon II. L. | - - | 3 10 52 ·86 | 135 ·84 | 66 ·34 | 17 25 5 ·3 | +356 |
| | Moon II. U. | 16 ·6 | 3 38 3 ·29 | 135 ·85 | 66 ·38 | 18 28 51 ·4 | 281 |
| | γ Tauri - - | 3.4 | 4 11 3 ·14 | | | 15 15 | |
| | ε Tauri - - | 4 | 4 19 38 ·87 | | | N.18 50 | |
| 18 | γ Tauri - - | 3.4 | 4 11 3 ·17 | | | N.15 15 | |
| | ε Tauri - - | 4 | 4 19 38 ·90 | | | 18 50 | |
| | Moon II. L. | - - | 4 5 12 ·22 | 135 ·59 | 66 ·36 | 19 17 26 ·0 | +204 |
| | Moon II. U. | 17 ·6 | 4 32 16 ·13 | 135 ·01 | 66 ·27 | 19 50 32 ·2 | 126 |
| | ι Tauri - - | 4.5 | 4 53 54 ·75 | | | 21 22 | |
| | *n* Tauri - - | 5.6 | 5 10 1 ·81 | | | N.21 56 | |
| 19 | ι Tauri - - | 4.5 | 4 53 54 ·78 | | | N.21 22 | |
| | *n* Tauri - - | 5.6 | 5 10 1 ·84 | | | 21 56 | |
| | Moon II. L. | - - | 4 59 11 ·31 | 134 ·13 | 66 ·09 | 20 8 7 ·9 | + 49 |
| | Moon II. U. | 18 ·6 | 5 25 54 ·23 | 132 ·97 | 65 ·84 | 20 10 23 ·8 | — 26 |
| | χ¹ Orionis - | 5 | 5 45 17 ·01 | | | 20 15 | |
| | χ⁵ Orionis - | 5 | 5 54 47 ·29 | | | N.20 8 | |
| 20 | χ¹ Orionis - | 5 | 5 45 17 ·04 | | | N.20 15 | |
| | χ⁵ Orionis - | 5 | 5 54 47 ·32 | | | 20 8 | |
| | Moon II. L. | - - | 5 52 21 ·73 | 131 ·57 | 65 ·53 | 19 57 43 ·0 | — 99 |
| | Moon II. U. | 19 ·7 | 6 18 31 ·30 | 130 ·00 | 65 ·14 | 19 30 37 ·8 | —170 |
| | ε Gem. mor. | 3 | 6 34 27 ·98 | | | N.25 17 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Oct. 20 | ζ Geminor. | 4 | 6 54 58 ·88 | | | N.20 47 | |
| 21 | ε Geminor. | 3 | 6 34 28 ·01 | | | N.25 17 | |
| | ζ Geminor. | 4 | 6 54 58 ·91 | | | 20 47 | |
| | Moon II. L. | - - | 6 44 21 ·29 | 128 ·32 | 64 ·72 | 18 49 47 ·6 | —237 ·3 |
| | Moon II. U. | 20 ·7 | 7 9 50 ·96 | 126 ·62 | 64 ·30 | 17 55 57 ·6 | 300 ·3 |
| | *k* Geminor. | 5 | 7 24 49 ·19 | | | 16 9 | |
| | *g* Geminor. | 6 | 7 37 12 ·55 | | | N.18 53 | |
| 22 | *k* Geminor. | 5 | 7 24 49 ·22 | | | N.16 9 | |
| | *g* Geminor. | 6 | 7 37 12 ·58 | | | 18 53 | |
| | Moon II. L. | - - | 7 35 0 ·51 | 124 ·99 | 63 ·88 | 16 49 56 ·0 | —359 ·2 |
| | Moon II. U. | 21 ·7 | 7 59 51 ·16 | 123 ·49 | 63 ·48 | 15 32 34 ·0 | 413 ·7 |
| | θ Cancri - - | 5.6 | 8 22 48 ·54 | | | 18 37 | |
| | δ Cancri - - | 4.5 | 8 35 55 ·50 | | | N.18 43 | |
| 23 | θ Cancri - - | 5.6 | 8 22 48 ·57 | | | N.18 37 | |
| | δ Cancri - - | 4.5 | 8 35 55 ·53 | | | 18 43 | |
| | Moon II. L. | - - | 8 24 25 ·00 | 122 ·19 | 63 ·14 | 14 4 43 ·6 | —463 ·9 |
| | Moon II. U. | 22 ·8 | 8 48 44 ·89 | 121 ·17 | 62 ·85 | 12 27 17 ·9 | 509 ·6 |
| | κ Cancri - * | 5.6 | 8 59 23 ·84 | | | 11 17 | |
| | ξ Leonis - * | 5 | 9 23 38 ·23 | | | N.11 59 | |
| 24 | κ Cancri - * | 5.6 | 8 59 23 ·86 | | | N.11 17 | |
| | ξ Leonis - * | 5 | 9 23 38 ·26 | | | 11 59 | |
| | Moon II. L. | - - | 9 12 54 ·43 | 120 ·48 | 62 ·64 | 10 41 10 ·6 | —550 ·8 |
| | Moon II. U. | 23 ·8 | 9 36 57 ·85 | 120 ·16 | 62 ·53 | 8 47 16 ·6 | 587 ·4 |
| | π Leonis - * | 4.5 | 9 52 3 ·97 | | | 8 47 | |
| | α Leonis - * | 1 | 10 0 9 ·56 | | | N.12 43 | |
| 25 | π Leonis - * | 4.5 | 9 52 4 ·00 | | | N. 8 47 | |
| | α Leonis - * | 1 | 10 0 9 ·59 | | | 12 43 | |
| | Moon II. L. | - - | 10 0 59 ·95 | 120 ·26 | 62 ·53 | 6 46 33 ·7 | —618 ·9 |
| | Moon II. U. | 24 ·8 | 10 25 5 ·88 | 120 ·81 | 62 ·65 | 4 40 3 ·2 | 645 ·2 |
| | *d* Leonis - * | 5 | 10 52 35 ·73 | | | 4 27 | |
| | $p^2$ Leonis - - | 5.6 | 10 59 2 ·19 | | | N. 2 48 | |
| 26 | Moon II. L. | - - | 10 49 21 ·25 | 121 ·83 | 62 ·89 | N. 2 28 51 ·0 | —665 ·8 |
| | Moon II. U. | 25 ·9 | 11 13 51 ·78 | 123 ·34 | 63 ·26 | N. 0 14 10 ·1 | 679 ·9 |
| 27 | Moon II. L. | - - | 11 38 43 ·49 | 125 ·36 | 63 ·76 | S. 2 2 37 ·4 | —686 ·8 |
| | Moon II. U. | 26 ·9 | 12 4 2 ·28 | 127 ·86 | 64 ·39 | 4 19 59 ·7 | 685 ·5 |
| 28 | Moon II. L. | - - | 12 29 53 ·94 | 130 ·83 | 65 ·13 | S. 6 36 12 ·9 | —675 ·1 |
| | Moon II. U. | 27 ·9 | 12 56 23 ·79 | 134 ·22 | 65 ·97 | 8 49 20 ·8 | 654 ·4 |
| 29 | Moon II. L. | - - | 13 23 36 ·46 | 137 ·95 | 66 ·90 | S. 10 57 14 ·5 | —622 ·6 |
| | Moon II. U. | 29 ·0 | 13 51 35 ·38 | 141 ·91 | 67 ·89 | 12 57 34 ·2 | 578 ·6 |
| 30 | Moon II. L. | - - | 14 20 22 ·46 | 145 ·94 | 68 ·89 | S. 14 47 51 ·6 | —522 ·1 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Oct. 31 | Moon I. U. | 0·5 | 14 47 37·78 | 149·71 | 69·85 | S. 16 25 34·8 | −453 |
| | Moon I. L. | - - | 15 17 56·31 | 153·31 | 70·74 | 17 48 16·1 | 371 |
| Nov. 1 | Moon I. U. | 1·5 | 15 48 55·01 | 156·36 | 71·48 | S. 18 53 38·2 | −280 |
| | Moon I. L. | - - | 16 20 25·85 | 158·63 | 72·04 | 19 39 44·8 | 179 |
| 2 | Moon I. U. | 2·6 | 16 52 18·48 | 159·97 | 72·38 | S. 20 5 9·2 | − 73 |
| | Moon I. L. | - - | 17 24 20·95 | 160·27 | 72·48 | 20 9 1·3 | + 35 |
| 3 | Moon I. U. | 3·6 | 17 56 20·79 | 159·53 | 72·32 | S. 19 51 12·0 | +142 |
| | Moon I. L. | - - | 18 28 6·06 | 157·87 | 71·95 | 19 12 11·7 | 246 |
| 4 | A.S.C. 2125 | 5 | 18 20 24·62 | | | S. 14 39 | |
| | $\xi^2$ Sagittarii - | 5 | 18 48 31·79 | | | 21 18 | |
| | Moon I. U. | 4·6 | 18 59 26·55 | 155·44 | 71·38 | 18 13 8·1 | +342 |
| | Moon I. L. | - - | 19 30 14·36 | 152·46 | 70·68 | 16 55 38·8 | 430 |
| | $\rho^1$ Sagittarii - | 5 | 19 12 44·02 | | | 18 8 | |
| | $e^2$ Sagittarii - | 5 | 19 33 42·14 | | | S. 16 29 | |
| 5 | $\rho^1$ Sagittarii - | 5 | 19 12 44·01 | | | S. 18 8 | |
| | $e^2$ Sagittarii - | 5 | 19 33 42·12 | | | 16 29 | |
| | Moon I. U. | 5·7 | 20 0 24·46 | 149·19 | 69·89 | 15 21 43·3 | +507 |
| | Moon I. L. | - - | 20 29 54·51 | 145·83 | 69·07 | 13 33 34·5 | 572 |
| | $\beta^2$ Capricorni | 3.4 | 20 12 21·14 | | | 15 15 | |
| | $\varepsilon$ Aquarii - | 4.5 | 20 39 20·25 | | | S. 10 3 | |
| 6 | $\beta^2$ Capricorni | 3.4 | 20 12 21·12 | | | S. 15 15 | |
| | $\varepsilon$ Aquarii - | 4.5 | 20 39 20·23 | | | 10 3 | |
| | Moon I. U. | 6·7 | 20 58 44·71 | 142·58 | 68·26 | 11 33 31·7 | +626 |
| | Moon I. L. | - - | 21 26 57·35 | 139·59 | 67·50 | 9 23 56·3 | 667 |
| | $\beta$ Aquarii - | 3 | 21 23 27·17 | | | 6 15 | |
| | $\lambda$ Capricorni | 5.6 | 21 38 14·92 | | | S. 12 4 | |
| 7 | $\beta$ Aquarii - | 3 | 21 23 27·15 | | | S. 6 15 | |
| | $\lambda$ Capricorni | 5.6 | 21 38 14·90 | | | 12 4 | |
| | Moon I. U. | 7·8 | 21 54 36·27 | 136·97 | 66·83 | 7 7 6·4 | +698 |
| | Moon I. L. | - - | 22 21 46·38 | 134·80 | 66·25 | 4 45 15·4 | 718 |
| | $\gamma$ Aquarii - | 4 | 22 13 42·47 | | | 2 10 | |
| | $\eta$ Aquarii - | 4 | 22 27 27·17 | | | S. 0 55 | |
| 8 | $\gamma$ Aquarii - | 4 | 22 13 42·46 | | | S. 2 10 | |
| | $\eta$ Aquarii - | 4 | 22 27 27·16 | | | 0 55 | |
| | Moon I. U. | 8·8 | 22 48 33·30 | 133·10 | 65·79 | S. 2 20 31·7 | +727 |
| | Moon I. L. | - - | 23 15 2·83 | 131·90 | 65·45 | N. 0 5 1·6 | 726 |
| | $\gamma$ Piscium - | 4.5 | 23 9 11·83 | | | 2 26 | |
| | $\kappa^1$ Piscium - | 5.6 | 23 19 3·27 | | | N. 0 25 | |
| 9 | $\gamma$ Piscium - | 4.5 | 23 9 11·82 | | | N. 2 26 | |
| | $\kappa^1$ Piscium - | 5.6 | 23 19 3·26 | | | 0 25 | |
| | Moon I. U. | 9·8 | 23 41 20·81 | 131·18 | 65·23 | N. 2 29 27·7 | +71[illegible] |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 845. | | | h m s | s | s | ° ′ ″ | ″ |
| ov. 9 | Moon I. L. | - - | 0 7 32 ·78 | 130 ·89 | 65 ·12 | N. 4 50 53 ·7 | +696 ·6 |
| | E¹ Piscium * | 6 | 0 2 8 ·09 | | | 10 17 | |
| | *d* Piscium * | 5.6 | 0 12 41 ·93 | | | N. 7 20 | |
| 10 | E¹ Piscium * | 6 | 0 2 8 ·09 | | | N.10 17 | |
| | *d* Piscium * | 5.6 | 0 12 41 ·92 | | | 7 20 | |
| | Moon I. U. | 10 ·9 | 0 33 43 ·72 | 131 ·00 | 65 ·11 | 7 7 31 ·3 | +668 ·2 |
| | Moon I. L. | - - | 0 59 57 ·95 | 131 ·42 | 65 ·19 | 9 17 37 ·5 | 631 ·4 |
| | ε Piscium * | 4 | 0 54 58 ·82 | | | N. 7 4 | |
| 11 | ε Piscium * | 4 | 0 54 58 ·82 | | | N. 7 4 | |
| | Moon I. U. | 11 ·9 | 1 26 18 ·80 | 132 ·09 | 65 ·33 | 11 19 33 ·4 | +586 ·6 |
| | Moon I. L. | - - | 1 52 48 ·60 | 132 ·90 | 65 ·52 | 13 11 46 ·7 | 534 ·4 |
| | β Arietis - - | 3 | 1 46 10 ·21 | | | N.20 3 | |
| 12 | β Arietis - - | 3 | 1 46 10 ·21 | | | N.20 3 | |
| | Moon I. U. | 13 ·0 | 2 19 28 ·55 | 133 ·76 | 65 ·71 | 14 52 52 ·0 | +475 ·4 |
| | Moon I. L. | - - | 2 46 18 ·47 | 134 ·55 | 65 ·91 | 16 21 32 ·9 | 410 ·5 |
| | π Arietis - - | 5 | 2 40 44 ·24 | | | 16 49 | |
| | δ Arietis - - | 4 | 3 2 51 ·50 | | | N.19 8 | |
| 13 | π Arietis - - | 5 | 2 40 44 ·24 | | | N.16 49 | |
| | δ Arietis - - | 4 | 3 2 51 ·51 | | | 19 8 | |
| | Moon I. U. | 14 ·0 | 3 13 17 ·02 | 135 ·18 | 66 ·07 | 17 36 44 ·0 | +340 ·6 |
| | η Tauri - - | 3 | 3 38 22 ·25 | | | 23 37 | |
| | A¹ Tauri - - | 5 | 3 55 37 ·59 | | | N.21 39 | |
| 14 | η Tauri - - | 3 | 3 38 22 ·26 | | | N.23 37 | |
| | A¹ Tauri - - | 5 | 3 55 37 ·61 | | | 21 39 | |
| | Moon II. L. | - - | 3 42 34 ·02 | 135 ·56 | 66 ·18 | 18 37 33 ·0 | +267 ·0 |
| | Moon II. U. | 15 ·0 | 4 9 41 ·24 | 135 ·59 | 66 ·20 | 19 23 21 ·9 | 190 ·8 |
| | α Tauri - - | 1 | 4 27 7 ·12 | | | 16 12 | |
| | ι Tauri - - | 4.5 | 4 53 55 ·38 | | | N.21 22 | |
| 15 | α Tauri - - | 1 | 4 27 7 ·14 | | | N.16 12 | |
| | ι Tauri - - | 4.5 | 4 53 55 ·39 | | | 21 22 | |
| | Moon II. L. | - - | 4 36 46 ·62 | 135 ·24 | 66 ·15 | 19 53 47 ·8 | +113 ·4 |
| | Moon II. U. | 16 ·1 | 5 3 45 ·48 | 134 ·50 | 66 ·00 | 20 8 44 ·0 | + 36 ·1 |
| | ζ Tauri - - | 3.4 | 5 28 28 ·21 | | | 21 3 | |
| | χ¹ Orionis - | 5 | 5 45 17 ·73 | | | N.20 15 | |
| 16 | ζ Tauri - - | 3.4 | 5 28 28 ·23 | | | N.21 3 | |
| | χ¹ Orionis - | 5 | 5 45 17 ·75 | | | 20 15 | |
| | Moon II. L. | - - | 5 30 33 ·22 | 133 ·39 | 65 ·76 | 20 8 19 ·3 | — 39 ·9 |
| | Moon II. U. | 17 ·1 | 5 57 5 ·61 | 131 ·96 | 65 ·43 | 19 52 56 ·0 | —113 ·5 |
| | μ Geminor. | 3 | 6 13 40 ·13 | | | 22 35 | |
| | γ Geminor. | 3 | 6 28 50 ·16 | | | N.16 32 | |
| 17 | μ Geminor. | 3 | 6 13 40 ·16 | | | N.22 35 | |
| | γ Geminor. | 3 | 6 28 50 ·19 | | | N.16 32 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. ☾'s D in 1 h of Lo |
|---|---|---|---|---|---|---|---|
| | | | h m s | s | s | ° ′ ″ | ″ |
| 1845. Nov. 17 | Moon II. L. | - - | 6 23 19 ·16 | 130 ·27 | 65 ·04 | N. 19 23 8 ·6 | —183 |
| | Moon II. U. | 18 ·1 | 6 49 11 ·34 | 128 ·41 | 64 ·61 | 18 39 40 ·8 | 250 |
| | δ Geminor. | 3.4 | 7 10 56 ·54 | | | 22 16 | |
| | k Geminor. | 5 | 7 24 50 ·01 | | | N. 16 9 | |
| 18 | δ Geminor. | 3.4 | 7 10 56 ·57 | | | N. 22 16 | |
| | k Geminor. | 5 | 7 24 50 ·04 | | | 16 9 | |
| | Moon II. L. | - - | 7 14 40 ·66 | 126 ·48 | 64 ·15 | 17 43 23 ·6 | —312 |
| | Moon II. U. | 19 ·2 | 7 39 46 ·87 | 124 ·57 | 63 ·68 | 16 35 11 ·6 | 369 |
| | ζ Cancri - - | 6 | 8 3 23 ·13 | | | N. 18 7 | |
| 19 | ζ Cancri - - | 6 | 8 3 23 ·16 | | | N. 18 7 | |
| | Moon II. L. | - - | 8 4 30 ·84 | 122 ·78 | 63 ·24 | 15 16 2 ·4 | —421 |
| | Moon II. U. | 20 ·2 | 8 28 54 ·48 | 121 ·20 | 62 ·83 | 13 46 53 ·9 | 469 |
| | $\alpha^2$ Cancri - * | 5 | 8 50 4 ·23 | | | 12 27 | |
| | κ Cancri - * | 5.6 | 8 59 24 ·67 | | | N. 11 17 | |
| 20 | $\alpha^2$ Cancri - * | 5 | 8 50 4 ·26 | | | N. 12 27 | |
| | κ Cancri - * | 5.6 | 8 59 24 ·70 | | | 11 17 | |
| | Moon II. L. | - - | 8 53 0 ·75 | 119 ·90 | 62 ·51 | 12 8 43 ·9 | —511 |
| | Moon II. U. | 21 ·2 | 9 16 53 ·38 | 118 ·94 | 62 ·26 | 10 22 29 ·8 | 549 |
| | o Leonis - * | 4 | 9 32 56 ·28 | | | 10 35 | |
| | π Leonis - * | 4.5 | 9 52 4 ·78 | | | N. 8 47 | |
| 21 | o Leonis - * | 4 | 9 32 56 ·31 | | | N. 10 35 | |
| | π Leonis - * | 4.5 | 9 52 4 ·81 | | | 8 47 | |
| | Moon II. L. | - - | 9 40 36 ·86 | 118 ·38 | 62 ·11 | 8 29 7 ·6 | —583 |
| | Moon II. U. | 22 ·2 | 10 4 16 ·36 | 118 ·28 | 62 ·08 | 6 29 34 ·0 | 611 |
| | ρ Leonis - * | 4 | 10 24 42 ·13 | | | 10 6 | |
| | 34 Sextantis * | 6 | 10 34 38 ·99 | | | N. 4 23 | |
| 22 | ρ Leonis - * | 4 | 10 24 42 ·16 | | | N. 10 6 | |
| | 34 Sextantis * | 6 | 10 34 39 ·02 | | | 4 23 | |
| | Moon II. L. | - - | 10 27 57 ·51 | 118 ·67 | 62 ·17 | 4 24 46 ·4 | —635 |
| | Moon II. U. | 23 ·3 | 10 51 46 ·50 | 119 ·58 | 62 ·40 | 2 15 44 ·8 | 653 |
| | τ Leonis - - | 4 | 11 20 1 ·04 | | | 3 42 | |
| | υ Leonis - - | 4.5 | 11 29 3 ·83 | | | N. 0 2 | |
| 23 | τ Leonis - - | 4 | 11 20 1 ·07 | | | N. 3 42 | |
| | υ Leonis - - | 4.5 | 11 29 3 ·85 | | | 0 2 | |
| | Moon II. L. | - - | 11 15 49 ·67 | 121 ·05 | 62 ·77 | N. 0 3 34 ·6 | —666 |
| | Moon II. U. | 24 ·3 | 11 40 13 ·94 | 123 ·09 | 63 ·29 | S. 2 10 33 ·4 | 673 |
| | η Virginis - | 3.4 | 12 12 1 ·36 | | | N. 0 11 | |
| 24 | η Virginis - | 3.4 | 12 12 1 ·39 | | | N. 0 11 | |
| | Moon II. L. | - - | 12 5 6 ·17 | 125 ·71 | 63 ·95 | S. 4 25 18 ·9 | —67 |
| | Moon II. U. | 25 ·3 | 12 30 33 ·28 | 128 ·90 | 64 ·75 | 6 39 10 ·7 | —66 |
| | ψ Virginis - | 5.6 | 12 46 20 ·81 | | | 8 42 | |
| | θ Virginis - | 4.5 | 13 1 58 ·62 | | | S. 4 43 | |

| te. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 5. | | | h m s | s | s | ° ′ ″ | ″ |
| .25 | Moon II. L. | - - | 12 56 41 ·96 | 132 ·63 | 65 ·69 | S. 8 50 24 ·0 | −646 ·3 |
| | Moon II. U. | 26 ·4 | 13 23 38 ·31 | 136 ·83 | 66 ·73 | 10 56 59 ·4 | 617 ·7 |
| 26 | Moon II. L. | - - | 13 51 27 ·41 | 141 ·40 | 67 ·84 | S. 12 56 42 ·7 | −577 ·4 |
| | Moon II. U. | 27 ·4 | 14 20 12 ·82 | 146 ·19 | 68 ·99 | 14 47 5 ·2 | 524 ·1 |
| 27 | Moon II. L. | - - | 14 49 55 ·97 | 150 ·98 | 70 ·14 | S. 16 25 28 ·0 | −457 ·4 |
| | Moon II. U. | 28 ·4 | 15 20 35 ·34 | 155 ·52 | 71 ·21 | 17 49 8 ·1 | 377 ·1 |
| 28 | Moon II. L. | - - | 15 52 6 ·13 | 159 ·50 | 72 ·15 | S. 18 55 27 ·6 | −284 ·1 |
| | Moon I. U. | 29 ·5 | 16 21 54 ·18 | 162 ·54 | 72 ·89 | 19 42 5 ·3 | 180 ·5 |
| 29 | Moon I. L. | - - | 16 54 38 ·36 | 164 ·62 | 73 ·37 | S. 20 7 9 ·2 | − 69 ·1 |
| 30 | Moon I. U. | 1 ·0 | 17 27 40 ·13 | 165 ·45 | 73 ·58 | S. 20 9 28 ·2 | + 46 ·2 |
| | Moon I. L. | - - | 18 0 43 ·97 | 164 ·97 | 73 ·48 | 19 48 40 ·8 | 161 ·3 |
| . 1 | Moon I. U. | 2 ·0 | 18 33 34 ·60 | 163 ·27 | 73 ·11 | S. 19 5 16 ·1 | +271 ·7 |
| | Moon I. L. | - - | 19 5 58 ·48 | 160 ·55 | 72 ·49 | 18 0 33 ·0 | 373 ·8 |
| 2 | Moon I. U. | 3 ·1 | 19 37 44 ·93 | 157 ·09 | 71 ·71 | S. 16 36 28 ·9 | +464 ·8 |
| | Moon I. L. | - - | 20 8 46 ·84 | 153 ·18 | 70 ·80 | 14 55 29 ·6 | 542 ·7 |
| 3 | $\alpha^2$ Capricorni | 3 | 20 9 29 ·87 | | | S. 13 1 | |
| | $\rho$ Capricorni | 5 | 20 20 3 ·86 | | | 18 19 | |
| | Moon I. U. | 4 ·1 | 20 39 0 ·61 | 149 ·11 | 69 ·84 | 13 0 18 ·3 | +606 ·8 |
| | Moon I. L. | - - | 21 8 25 ·91 | 145 ·14 | 68 ·88 | 10 53 42 ·2 | 656 ·9 |
| | $\nu$ Aquarii - | 5 | 21 1 11 ·85 | | | 12 0 | |
| | $\beta$ Aquarii - | 3 | 21 23 26 ·81 | | | S. 6 15 | |
| 4 | $\nu$ Aquarii - | 5 | 21 1 11 ·84 | | | S. 12 0 | |
| | $\beta$ Aquarii - | 3 | 21 23 26 ·80 | | | 6 15 | |
| | Moon I. U. | 5 ·1 | 21 37 5 ·00 | 141 ·44 | 67 ·99 | 8 38 26 ·6 | +693 ·5 |
| | Moon I. L. | - - | 22 5 2 ·15 | 138 ·16 | 67 ·18 | 6 17 8 ·5 | 717 ·5 |
| | $\theta$ Aquarii - | 4.5 | 22 8 42 ·25 | | | 8 33 | |
| | $\zeta$ Aquarii - | 4 | 22 20 54 ·20 | | | S. 0 48 | |
| 5 | $\theta$ Aquarii - | 4.5 | 22 8 42 ·24 | | | S. 8 33 | |
| | $\zeta$ Aquarii - | 4 | 22 20 54 ·19 | | | 0 48 | |
| | Moon I. U. | 6 ·2 | 22 32 22 ·91 | 135 ·39 | 66 ·48 | 3 52 13 ·5 | +729 ·8 |
| | Moon I. L. | - - | 22 59 13 ·60 | 133 ·16 | 65 ·91 | S. 1 25 55 ·3 | 731 ·5 |
| | $\beta$ Piscium - | 5 | 22 56 2 ·92 | | | N. 3 0 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 11 ·50 | | | N. 2 27 | |
| 6 | $\beta$ Piscium - | 5 | 22 56 2 ·91 | | | N. 3 0 | |
| | $\gamma$ Piscium - | 4.5 | 23 9 11 ·49 | | | 2 27 | |
| | Moon I. U. | 7 ·2 | 23 25 40 ·86 | 131 ·48 | 65 ·47 | 0 59 43 ·9 | +723 ·5 |
| | Moon I. L. | - - | 23 51 51 ·33 | 130 ·35 | 65 ·17 | 3 22 52 ·7 | +706 ·6 |
| | $\omega$ Piscium * | 4.5 | 23 51 25 ·03 | | | N. 6 1 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension in Time. | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Dec. 7 | ω Piscium * | 4.5 | 23 51 25 ·01 | | | N. 6 1 | |
| | Moon I. U. | 8 ·2 | 0 17 51 ·27 | 129 ·72 | 64 ·99 | 5 41 48 ·1 | +681 ·4 |
| | Moon I. L. | - - | 0 43 46 ·49 | 129 ·55 | 64 ·92 | 7 54 55 ·4 | 648 ·6 |
| | δ Piscium * | 5 | 0 40 42 ·90 | | | 6 45 | |
| | ε Piscium * | 4 | 0 54 58 ·64 | | | N. 7 4 | |
| 8 | δ Piscium * | 5 | 0 40 42 ·89 | | | N. 6 45 | |
| | ε Piscium * | 4 | 0 54 58 ·63 | | | 7 4 | |
| | Moon I. U. | 9 ·3 | 1 9 42 ·02 | 129 ·76 | 64 ·95 | 10 0 45 ·4 | +608 ·6 |
| | Moon I. L. | - - | 1 35 42 ·07 | 130 ·29 | 65 ·06 | 11 57 54 ·9 | 561 ·9 |
| | η Piscium - | 4 | 1 23 16 ·47 | | | 14 33 | |
| | β Arietis - - | 3 | 1 46 10 ·13 | | | N.20 3 | |
| 9 | η Piscium - | 4 | 1 23 16 ·46 | | | N.14 33 | |
| | β Arietis - - | 3 | 1 46 10 ·12 | | | 20 3 | |
| | Moon I. U. | 10 ·3 | 2 1 49 ·78 | 131 ·02 | 65 ·21 | 13 45 5 ·9 | +508 ·5 |
| | Moon I. L. | - - | 2 28 7 ·06 | 131 ·87 | 65 ·39 | 15 21 5 ·9 | 450 ·1 |
| | ψ Arietis - - | 6 | 2 22 23 ·75 | | | 17 1 | |
| | π Arietis - - | 5 | 2 40 44 ·28 | | | N.16 49 | |
| 10 | ψ Arietis - - | 6 | 2 22 23 ·75 | | | N.17 1 | |
| | π Arietis - - | 5 | 2 40 44 ·28 | | | 16 49 | |
| | Moon I. U. | 11 ·4 | 2 54 34 ·67 | 132 ·72 | 65 ·57 | 16 44 48 ·7 | +386 ·2 |
| | Moon I. L. | - - | 3 21 12 ·01 | 133 ·48 | 65 ·74 | 17 55 17 ·1 | 317 ·8 |
| | ζ Arietis - - | 5 | 3 6 5 ·53 | | | N.20 28 | |
| 11 | ζ Arietis - - | 5 | 3 6 5 ·53 | | | N.20 28 | |
| | Moon I. U. | 12 ·4 | 3 47 57 ·26 | 134 ·02 | 65 ·85 | 18 51 42 ·5 | +245 ·9 |
| | Moon I. L. | - - | 4 14 47 ·41 | 134 ·28 | 65 ·90 | 19 33 28 ·3 | 171 ·4 |
| | δ¹ Tauri - - | 4 | 4 14 5 ·47 | | | 17 11 | |
| | α Tauri - - | 1 | 4 27 7 ·43 | | | N.16 12 | |
| 12 | δ¹ Tauri - - | 4 | 4 14 5 ·48 | | | N.17 11 | |
| | α Tauri - - | 1 | 4 27 7 ·44 | | | 16 12 | |
| | Moon I. U. | 13 ·4 | 4 41 38 ·60 | 134 ·19 | 65 ·86 | 20 0 11 ·7 | + 95 ·6 |
| | Moon I. L. | - - | 5 8 26 ·38 | 133 ·71 | 65 ·73 | 20 11 42 ·5 | + 19 ·6 |
| | ι Tauri - - | 4.5 | 4 53 55 ·78 | | | 21 22 | |
| | ο Tauri - - | 5 | 5 18 25 ·39 | | | N.21 48 | |
| 13 | ι Tauri - - | 4.5 | 4 53 55 ·79 | | | N.21 22 | |
| | ο Tauri - - | 5 | 5 18 25 ·41 | | | 21 48 | |
| | Moon II. U. | 14 ·5 | 5 37 17 ·04 | 132 ·79 | 65 ·51 | 20 8 6 ·0 | — 55 ·4 |
| | η Geminor. | 4.5 | 6 5 37 ·15 | | | 22 33 | |
| | μ Geminor. | 3 | 6 13 40 ·72 | | | N.22 35 | |
| 14 | η Geminor. | 4.5 | 6 5 37 ·16 | | | N.22 33 | |
| | μ Geminor. | 3 | 6 13 40 ·74 | | | 22 35 | |
| | Moon II. L. | - - | 6 3 43 ·41 | 131 ·55 | 65 ·21 | 19 49 41 ·8 | —128 ·2 |
| | Moon II. U. | 15 ·5 | 6 29 52 ·92 | 129 ·99 | 64 ·84 | 19 17 1 ·5 | —197 ·9 |
| | ζ Geminor. | 4 | 6 55 0 ·40 | | | N.20 47 | |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R.A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. | Var. of ☾'s Dec. in 1 hour of Long. |
|---|---|---|---|---|---|---|---|
| 1845. | | | h m s | s | s | ° ′ ″ | ″ |
| Dec. 14 | 51 Geminor. | 5 | 7 4 33 ·36 | | | N.16 25 | |
| 15 | ζ Geminor. | 4 | 6 55 0 ·42 | | | N.20 47 | |
| | 51 Geminor. | 5 | 7 4 33 ·38 | | | 16 25 | |
| | Moon II. L. | - - | 6 55 42 ·37 | 128 ·22 | 64 ·40 | 18 30 47 ·9 | —263 ·6 |
| | Moon II. U. | 16 ·6 | 7 21 9 ·63 | 126 ·31 | 63 ·94 | 17 31 53 ·0 | 324 ·7 |
| | g Geminor. | 6 | 7 37 14 ·17 | | | N.18 53 | |
| 16 | g Geminor. | 6 | 7 37 14 ·19 | | | N.18 53 | |
| | Moon II. L. | - - | 7 46 13 ·63 | 124 ·36 | 63 ·46 | 16 21 14 ·1 | —380 ·9 |
| | Moon II. U. | 17 ·6 | 8 10 54 ·56 | 122 ·48 | 63 ·01 | 14 59 52 ·3 | 431 ·8 |
| | δ Cancri - - | 4.5 | 8 35 57 ·23 | | | 18 43 | |
| | $\alpha^2$ Cancri - * | 5 | 8 50 5 ·04 | | | N.12 27 | |
| 17 | δ Cancri - - | 4.5 | 8 35 57 ·25 | | | N.18 43 | |
| | $\alpha^2$ Cancri - * | 5 | 8 50 5 ·07 | | | 12 27 | |
| | Moon II. L. | - - | 8 35 13 ·64 | 120 ·74 | 62 ·58 | 13 28 51 ·1 | —477 ·5 |
| | Moon II. U. | 18 ·6 | 8 59 13 ·23 | 119 ·24 | 62 ·21 | 11 49 14 ·1 | 517 ·8 |
| | ξ Leonis - * | 5 | 9 23 39 ·94 | | | 11 59 | |
| | o Leonis - * | 4 | 9 32 57 ·13 | | | N.10 35 | |
| 18 | ξ Leonis - * | 5 | 9 23 39 ·97 | | | N.11 59 | |
| | o Leonis - * | 4 | 9 32 57 ·16 | | | 10 35 | |
| | Moon II. L. | - - | 9 22 56 ·55 | 118 ·04 | 61 ·92 | 10 2 4 ·0 | —553 ·0 |
| | Moon II. U. | 19 ·7 | 9 46 27 ·67 | 117 ·21 | 61 ·72 | 8 8 22 ·0 | 583 ·1 |
| | α Leonis - * | 1 | 10 0 11 ·27 | | | N.12 43 | |
| 19 | α Leonis - * | 1 | 10 0 11 ·30 | | | N.12 43 | |
| | Moon II. L. | - - | 10 9 51 ·38 | 116 ·81 | 61 ·64 | 6 9 9 ·0 | —608 ·2 |
| | Moon II. U. | 20 ·7 | 10 33 13 ·01 | 116 ·88 | 61 ·67 | 4 5 25 ·1 | 628 ·3 |
| | χ Leonis - * | 4.5 | 10 57 5 ·06 | | | N. 8 10 | |
| | φ Leonis - - | 5 | 11 8 51 ·06 | | | S. 2 49 | |
| 20 | χ Leonis - * | 4.5 | 10 57 5 ·10 | | | N. 8 10 | |
| | φ Leonis - - | 5 | 11 8 51 ·09 | | | S. 2 49 | |
| | Moon II. L. | - - | 10 56 38 ·50 | 117 ·46 | 61 ·84 | N. 1 58 10 ·3 | —643 ·3 |
| | Moon II. U. | 21 ·7 | 11 20 14 ·19 | 118 ·58 | 62 ·15 | S. 0 11 32 ·3 | 652 ·9 |
| | υ Leonis - - | 4.5 | 11 29 4 ·71 | | | N. 0 2 | |
| | β Virginis - | 3.4 | 11 42 41 ·31 | | | N. 2 38 | |
| 21 | υ Leonis - - | 4.5 | 11 29 4 ·74 | | | N. 0 2 | |
| | β Virginis - | 3.4 | 11 42 41 ·35 | | | N. 2 38 | |
| | Moon II. L. | - - | 11 44 6 ·78 | 120 ·28 | 62 ·61 | S. 2 22 36 ·4 | —656 ·8 |
| | Moon II. U. | 22 ·8 | 12 8 23 ·30 | 122 ·57 | 63 ·22 | 4 33 50 ·4 | 654 ·4 |
| | $\gamma^1$ Virginis - | 4 | 12 33 51 ·83 | | | 0 36 | |
| | ψ Virginis - | 5.6 | 12 46 21 ·62 | | | S. 8 42 | |
| 22 | $\gamma^1$ Virginis - | 4 | 12 33 51 ·86 | | | S. 0 36 | |
| | ψ Virginis - | 5.6 | 12 46 21 ·66 | | | 8 42 | |
| | Moon II. L. | - - | 12 33 10 ·88 | 125 ·46 | 63 ·97 | S. 6 43 54 ·5 | —645 ·0 |

| Date. | Name. | Magnitude. | At Greenwich Transit. Apparent Right Ascension *in Time.* | Var. of ☾'s R. A. in 1 hour of Long. | Sidereal Time of ☾'s Sem. pas. mer. | Declination. |
|---|---|---|---|---|---|---|
| 1845 | | | h m s | s | s | ° ′ ″ |
| Dec. 22 | Moon II. U. | 23·8 | 12 58 36·76 | 128·95 | 64·86 | S. 8 51 17·9 |
| | α Virginis - | 1 | 13 17 5·58 | | | 10 21 |
| | m Virginis - | 5.6 | 13 33 32·64 | | | S. 7 55 |
| 23 | α Virginis - | 1 | 13 17 5·61 | | | S. 10 21 |
| | m Virginis - | 5.6 | 13 33 32·67 | | | 7 55 |
| | Moon II. L. | - - | 13 24 47·84 | 132·99 | 65·89 | 10 54 17·9 |
| | Moon II. U. | 24·8 | 13 51 50·42 | 137·52 | 67·01 | 12 50 58·8 |
| | κ Virginis - | 4 | 14 4 41·46 | | | 9 33 |
| | 2 Libræ - - | 6 | 14 15 8·08 | | | S. 11 0 |
| 24 | Moon II. L. | - - | 14 19 49·76 | 142·43 | 68·20 | S. 14 39 8·6 |
| | Moon II. U. | 25·9 | 14 48 49·47 | 147·55 | 69·43 | 16 16 23·1 |
| 25 | Moon II. L. | - - | 15 18 50·72 | 152·64 | 70·64 | S. 17 40 7·3 |
| | Moon II. U. | 26·9 | 15 49 51·65 | 157·44 | 71·75 | 18 47 43·0 |
| 26 | Moon II. L. | - - | 16 21 46·82 | 161·63 | 72·70 | S. 19 36 38·3 |
| | Moon II. U. | 27·9 | 16 54 27·01 | 164·88 | 73·45 | 20 4 39·2 |
| 27 | Moon II. L. | - - | 17 27 39·38 | 166·96 | 73·90 | S. 20 10 4·3 |
| | Moon II. U. | 29·0 | 18 1 8·74 | 167·69 | 74·06 | 19 51 57·0 |
| 28 | Moon I. L. | - - | 18 32 10·78 | 167·10 | 73·91 | S. 19 10 14·2 |
| 29 | Moon I. U. | 0·5 | 19 5 26·18 | 165·26 | 73·48 | S. 18 5 48·9 |
| | Moon I. L. | - - | 19 38 13·05 | 162·40 | 72·82 | 16 40 26·6 |
| 30 | Moon I. U. | 1·6 | 20 10 20·81 | 158·80 | 71·99 | S. 14 56 33·8 |
| | Moon I. L. | - - | 20 41 42·65 | 154·80 | 71·06 | 12 57 5·9 |
| 31 | Moon I. U. | 2·6 | 21 12 15·45 | 150·68 | 70·10 | S. 10 45 13·9 |
| | Moon I. L. | - - | 21 41 59·32 | 146·68 | 69·16 | S. 8 24 10·5 |

## OCCULTATIONS OF FIXED STARS BY THE MOON,

VISIBLE AT GREENWICH.

| Day of the Month. | Star's Name. | Magnitude. | Immersion. Sidereal Time. | Immersion. Mean Time. | Immersion. Angle from N. Point. | Immersion. Angle from Vertex. | Emersion. Sidereal Time. | Emersion. Mean Time. | Emersion. Angle from N. Point. | Emersion. Angle from Vertex. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | h m | h m | ° | ° | h m | h m | ° | ° |
| an. 10 | $c^1$ Capricorni - | 6 | 0 58 | 5 37 | 56 | 86 | 1 29 | 6 8 | 356 | 28 |
| 12 | $\kappa^2$ Piscium - - | 6 | 0 4 | 4 36 | 115 | 124 | 1 18 | 5 49 | 302 | 324 |
| 12 | $\kappa^1$ Piscium - - | 5.6 | 0 9 | 4 40 | 151 | 160 | 1 12 | 5 44 | 267 | 288 |
| 12 | 16 Piscium - - | 6 | 5 26 | 9 57 | 88 | 127 | 6 17‡ | 10 48 | 312 | 350 |
| 16 | $\pi$ Arietis - - - | 5 | 4 38 | 8 53 | 38 | 65 | 5 11 | 9 27 | 348 | 20 |
| 16 | $\rho^3$ Arietis - - - | 6 | 8 32 | 12 47 | 114 | 154 | 9 29 | 13 43 | 260 | 298 |
| 20 | $\nu$ Geminorum - | 5 | 14 5† | 18 3 | 170 | 204 | | | | |
| 22 | 1 Cancri - - - | 6 | 7 31† | 11 22 | 342 | 338 | | | | |
| 23 | $\alpha^1$ Cancri - - - | 6 | 13 8 | 16 55 | 68 | 107 | 14 10 | 17 56 | 247 | 287 |
| b. 3 | $\xi^1$ Sagittarii - - | 6 | 14 19‡ | 17 22 | 63 | 28 | 15 13 | 18 16 | 306 | 275 |
| 14 | $\omega^2$ Tauri - - - | 5.6 | 8 34 | 10 54 | 105 | 146 | 9 36 | 11 57 | 254 | 295 |
| 16 | $\chi^5$ Orionis- - - | 5 | 11 45† | 13 57 | 350 | 30 | | | | |
| 19 | 29 Cancri - - - | 6 | 8 2† | 10 3 | 158 | 153 | | | | |
| 21 | C Sextantis - - | 6 | 8 4 | 9 57 | 47 | 24 | 9 17 | 11 10 | 261 | 252 |
| 22 | $u$ Leonis - - - | 6 | 8 32 | 10 21 | 10 | 346 | 9 16 | 11 5 | 295 | 278 |
| 22 | $g^1$ Leonis - - - | 6 | 13 23 | 15 12 | 86 | 112 | 14 27 | 16 15 | 221 | 254 |
| ar. 1 | 2 Sagittarii - - | 6 | 17 36† | 18 56 | 182 | 184 | | | | |
| 12 | 53 Arietis - - - | 6 | 9 33 | 10 11 | 89 | 128 | 10 28 | 11 6 | 282 | 318 |
| 19 | $\alpha^1$ Cancri - - - | 6 | 7 25 | 7 36 | 47 | 29 | 8 40 | 8 51 | 268 | 266 |
| 19 | $\kappa$ Cancri - - - | 5.6 | 14 52 | 15 2 | 130 | 169 | 15 20 | 15 30 | 190 | 228 |
| 22 | $e$ Leonis - - - | 4.5 | 13 4† | 13 3 | 332 | 350 | | | | |
| 25 | A.S.C.1610 - | 6 | 12 15 | 12 1 | 41 | 24 | 13 19 | 13 5 | 274 | 266 |
| 26 | $\iota^1$ Libræ - - - | 5.6 | 14 10 | 13 53 | 13 | 4 | 14 46 | 14 29 | 314 | 311 |
| 27 | A.S.C.1854 - | 6 | 14 13 | 13 52 | 108 | 90 | 15 17 | 14 56 | 231 | 223 |
| 30 | $d$ Sagittarii - - | 5 | 15 41† | 15 8 | 187 | 157 | | | | |
| pr. 12 | $E^1$ Orionis- - - | 6 | 10 39 | 9 15 | 79 | 120 | 11 41 | 10 18 | 259 | 300 |
| 15 | $A^2$ Cancri - - - | 6 | 15 4 | 13 28 | 132 | 171 | 15 30 | 13 54 | 191 | 228 |
| 18 | $g^1$ Leonis- - - | 6 | 10 2 | 8 15 | 73 | 62 | 11 17 | 9 30 | 229 | 233 |
| lay 9 | $\chi^1$ Orionis- - - | 5 | 11 52† | 8 42 | 171 | 211 | | | | |
| 9 | $\chi^2$ Orionis- - - | 6 | 12 16† | 9 6 | 351 | 30 | | | | |
| 13 | $\kappa$ Cancri - - - | 5.6 | 10 56† | 7 31 | 155 | 179 | | | | |
| 16 | $e$ Leonis - - - | 4.5 | 11 16† | 7 38 | 331 | 330 | | | | |
| 19 | A.S.C.1610 - | 6 | 11 3 | 7 14 | 17 | 351 | 11 45 | 7 56 | 298 | 277 |

## OCCULTATIONS OF FIXED STARS BY THE MOO

VISIBLE AT GREENWICH.

| Day of the Month. | Star's Name. | Magnitude. | Immersion. Sidereal Time. | Immersion. Mean Time. | Immersion. Angle from N. Point. | Immersion. Angle from Vertex. | Emersion. Sidereal Time. | Emersion. Mean Time. | Emersion. Ang N. Poi |
|---|---|---|---|---|---|---|---|---|---|
| | | | h m | h m | ° | ° | h m | h m | |
| May 20 | $\iota^1$ Libræ | 5.6 | 12 6† | 8 12 | 342 | 316 | | | |
| 21 | $\omega$ Ophiuchi | 5 | 19 58† | 15 59 | 180 | 211 | | | |
| 22 | 2 Sagittarii | 6 | 20 10 | 16 8 | 79 | 103 | 21 12 | 17 9 | 2 |
| June 19 | $\mu^1$ Sagittarii | 3.4 | 21 49 | 15 56 | 126 | 157 | 22 43‡ | 16 50 | 2 |
| 20 | $d$ Sagittarii | 5 | 21 34 | 15 37 | 117 | 139 | 22 37 | 16 40 | 2 |
| 25 | 22 Piscium | 6 | 18 58 | 12 42 | 107 | 70 | 20 1 | 13 45 | 3 |
| July 9 | $g^1$ Leonis | 6 | 15 46 | 8 36 | 89 | 126 | 16 43 | 9 32 | 2 |
| 15 | $\omega$ Ophiuchi | 5 | 19 58 | 12 23 | 121 | 152 | 20 52‡ | 13 17 | 2 |
| 16 | 2 Sagittarii | 6 | 21 12 | 13 33 | 57 | 88 | 21 58‡ | 14 19 | 3 |
| 20 | $c^1$ Capricorni | 6 | 20 34 | 12 39 | 118 | 107 | 21 46 | 13 51 | 2 |
| 21 | $\kappa$ Aquarii | 6 | 19 13 | 11 15 | 138 | 109 | 20 14 | 12 16 | 2 |
| Aug. 11 | $\omega^1$ Scorpii | 4.5 | 19 45 | 10 24 | 147 | 179 | 20 19‡ | 10 58 | 2 |
| 11 | $\omega^2$ Scorpii | 4.5 | 19 47 | 10 26 | 96 | 127 | 20 50‡ | 11 29 | 2 |
| 12 | 28 Scorpii | 6 | 18 53 | 9 28 | 133 | 152 | 19 46 | 10 21 | 2 |
| 13 | $\mu^1$ Sagittarii | 3.4 | 21 13 | 11 44 | 92 | 119 | 22 16* | 12 47 | 2 |
| 13 | $\mu^2$ Sagittarii | 6 | 22 10 | 12 41 | 153 | 186 | 22 48‡ | 13 19 | 2 |
| 14 | $d$ Sagittarii | 5 | 21 55 | 12 22 | 95 | 120 | 22 58 | 13 25 | 2 |
| 20 | $\delta$ Piscium | 5 | 18 22 | 8 26 | 102 | 63 | 19 17 | 9 21 | 2 |
| 26 | $\chi^4$ Orionis | 5.6 | 22 14 | 11 54 | 112 | 77 | 23 6 | 12 45 | 2 |
| 26 | $E^1$ Orionis | 6 | 2 31 | 16 10 | 129 | 89 | 3 31 | 17 10 | 2 |
| Sept. 13 | $c^1$ Capricorni | 6 | 19 59 | 8 28 | 121 | 104 | 21 10 | 9 39 | 2 |
| 14 | $\kappa$ Aquarii | 6 | 19 8 | 7 34 | 171 | 141 | 19 43 | 8 8 | 2 |
| 15 | $\lambda$ Piscium | 5 | 0 57 | 13 18 | 101 | 117 | 2 5 | 14 26 | 2 |
| 22 | $\chi^2$ Orionis | 6 | 4 16 | 16 9 | 91 | 68 | 5 41 | 17 33 | 2 |
| 26 | $\kappa$ Cancri | 5.6 | 2 49 | 14 26 | 89 | 50 | 3 48 | 15 25 | 2 |
| 28 | $n$ Sextantis | 6 | 4 48 | 16 17 | 128 | 89 | 5 20 | 16 49 | |
| Oct. 8 | A. S. C. 2270 | 6 | 18 31 | 5 22 | 67 | 59 | 19 31 | 6 22 | 2 |
| 18 | $\epsilon$ Tauri | 4 | 21 38 | 7 49 | 85 | 47 | 22 32 | 8 43 | 2 |
| 20 | $E^2$ Orionis | 5.6 | 23 12 | 9 15 | 119 | 81 | 0 3 | 10 6 | 2 |
| 23 | $A^2$ Cancri | 6 | 2 24 | 12 15 | 104 | 65 | 3 19 | 13 10 | 2 |
| Nov. 3 | 16 Sagittarii | 6 | 21 45 | 6 53 | 116 | 147 | 22 44‡ | 7 53 | 2 |
| 3 | $\mu^2$ Sagittarii | 6 | 21 58 | 7 6 | 28 | 60 | 22 16* | 7 24 | 2 |
| 6 | $\nu$ Aquarii | 5 | 22 4† | 7 1 | 204 | 215 | | | |

## OCCULTATIONS OF FIXED STARS BY THE MOON,

VISIBLE AT GREENWICH.

| Day of the Month. | Star's Name. | Magnitude. | Immersion. Sidereal Time. | Immersion. Mean Time. | Immersion. Angle from N. Point. | Immersion. Angle from Vertex. | Emersion. Sidereal Time. | Emersion. Mean Time. | Emersion. Angle from N. Point. | Emersion. Angle from Vertex. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | h m | h m | ° | ° | h m | h m | ° | ° |
| Nov. 9 | λ Piscium - - | 5 | 18 25 | 3 10 | 145 | 107 | 19 16 | 4 1 | 260 | 224 |
| 9 | 22 Piscium - - | 6 | 0 20 | 9 5 | 137 | 144 | 1 30 | 10 15 | 277 | 297 |
| 10 | δ Piscium - - | 5 | 4 6† | 12 46 | 20 | 54 | | | | |
| 14 | ε Tauri - - - | 4 | 9 59 | 18 22 | 49 | 89 | 10 43 | 19 6 | 310 | 348 |
| 16 | $\chi^2$ Orionis - - | 6 | 0 2† | 8 19 | 183 | 143 | | | | |
| 21 | C Sextantis - - | 6 | 6 12 | 14 8 | 68 | 33 | 7 25 | 15 21 | 248 | 221 |
| 22 | u Leonis - - - | 6 | 9 1† | 16 53 | 334 | 314 | | | | |
| Dec. 4 | $c^1$ Capricorni - | 6 | 20 5 | 3 12 | 90 | 75 | 21 13 | 4 19 | 317 | 313 |
| 6 | λ Piscium - - | 5 | 3 30 | 10 27 | 69 | 103 | 4 15 | 11 13 | 336 | 13 |
| 13 | $\chi^2$ Orionis - - | 6 | 11 12† | 17 41 | 171 | 212 | | | | |
| 17 | $\alpha^1$ Cancri - - - | 6 | 1 52 | 8 6 | 123 | 86 | 2 33 | 8 47 | 214 | 175 |
| 17 | κ Cancri - - - | 5.6 | 9 11 | 15 24 | 106 | 108 | 10 14 | 16 27 | 206 | 223 |
| 22 | g Virginis - - | 5.6 | 13 52 | 19 45 | 72 | 81 | 15 8 | 21 1 | 243 | 264 |
| 24 | A.S.C. 1682 - | 6 | 12 19† | 18 5 | 340 | 318 | | | | |
| 25 | λ Libræ - - - | 5 | 13 11 | 18 53 | 35 | 12 | 14 4 | 19 46 | 297 | 281 |

‡ Star below the horizon.

† A near approach.

* Star Setting.

ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the M

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | Lin Par |
|---|---|---|---|---|---|---|---|
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Lati ° |
| Jan. 1 | *i* Virginis - | 5 | 23 35 20 | 13 18 33·34 | S. 11 53 56·3 | S. 7 34 | 26 N. |
| 4 | κ Libræ - - | 5 | 7 32 55 | 15 33 1·89 | 19 10 10·9 | 47 35 | 21 S. |
| 4 | λ Libræ - - | 5 | 11 55 43 | 15 44 20·92 | 19 41 50·0 | 38 47 | 13 S. |
| 4 | $\omega^1$ Scorpii - | 4.5 | 17 4 7 | 15 57 45·19 | S. 20 14 32·1 | S. 29 29 | 5 S. |
| 4 | $\omega^2$ Scorpii - | 4.5 | 17 17 16 | 15 58 19·63 | S. 20 26 32·9 | S. 18 23 | 4 N. |
| 5 | ω Ophiuchi | 5 | 2 36 53 | 16 22 57·46 | 21 7 37·1 | 9 35 | 10 N. |
| 5 | Venus- - | - | 13 1 49 | 16 50 49·06 | 21 9 15·0 | 28 7 | 9 S. |
| 5 | ρ Ophiuchi | 4.5 | 20 46 56 | 17 11 42·75 | S. 20 56 15·2 | S. 44 50 | 25 S. |
| 10 | ξ Aquarii - | 5 | 1 58 39 | 21 29 29·60 | S. 8 32 40·4 | S. 59 45 | 23 S. |
| 10 | $c^1$ Capricorni | 6 | 5 9 41 | 21 36 43·39 | S. 9 47 16·8 | N. 53 9 | 80 N. |
| 12 | $\kappa^1$ Piscium - | 5.6 | 4 40 7 | 23 18 59·69 | N. 0 24 35·1 | 30 44 | 72 N. |
| 12 | $\kappa^2$ Piscium - | 6 | 4 49 15 | 23 19 18·55 | N. 0 16 30·7 | N. 40 41 | 90 N. |
| 12 | 16 Piscium - | 6 | 9 16 47 | 23 28 29·39 | N. 1 14 45·0 | N. 36 56 | 82 N. |
| 16 | π Arietis- - | 5 | 8 37 46 | 2 40 40·83 | 16 49 3·4 | 41 57 | 90 N. |
| 16 | $\rho^3$ Arietis- - | 6 | 12 4 31 | 2 47 43·12 | 17 24 13·2 | N. 29 19 | 74 N. |
| 16 | δ Arietis- - | 4 | 19 25 57 | 3 2 48·14 | N. 19 8 16·4 | S. 29 57 | 7 N. |
| 17 | $A^1$ Tauri - - | 5 | 20 52 53 | 3 55 34·39 | N. 21 39 17·1 | S. 62 54 | 39 S. |
| 19 | ι Tauri - - | 4.5 | 0 33 49 | 4 53 52·47 | 21 21 47·7 | N. 13 33 | 53 N. |
| 19 | ο Tauri - - | 5 | 12 6 49 | 5 18 22·16 | 21 47 54·5 | S. 10 26 | 26 N. |
| 19 | ζ Tauri - - | 3.4 | 16 50 58 | 5 28 25·51 | N. 21 2 31·6 | N. 31 56 | 81 N. |
| 20 | $\chi^3$ Orionis - | 5 | 5 15 5 | 5 54 45·51 | N. 20 8 7·2 | N. 67 45 | 90 N. |
| 20 | ν Geminor. | 5 | 17 4 7 | 6 19 48·17 | 20 18 11·4 | 25 42 | 69 N. |
| 22 | 1 Cancri - | 6 | 11 18 24 | 7 48 13·42 | 16 11 52·3 | 49 33 | 90 N. |
| 23 | $\alpha^1$ Cancri - | 6 | 16 18 44 | 8 47 29·92 | N. 12 12 40·0 | N. 50 1 | 90 N. |
| 23 | $\alpha^2$ Cancri - | 5 | 17 34 20 | 8 50 2·80 | N. 12 27 3·2 | N. 23 56 | 65 N. |
| 25 | π Leonis - | 4.5 | 0 30 41 | 9 52 3·67 | N. 8 46 53·9 | S. 71 11 | 46 S. |
| 26 | *e* Leonis - | 4.5 | 21 47 2 | 11 22 25·93 | S. 2 9 7·3 | N. 60 51 | 88 N. |
| 29 | *i* Virginis - | 5 | 5 22 30 | 13 18 34·25 | S. 11 54 1·8 | N. 6 40 | 40 N. |
| 31 | κ Libræ - - | 5 | 15 1 26 | 15 33 2·76 | S. 19 10 14·1 | S. 35 12 | 9 S. |
| 31 | λ Libræ - - | 5 | 19 34 16 | 15 44 21·78 | 19 41 53·0 | 26 42 | 2 S. |
| Feb. 1 | $\beta^1$ Scorpii - | 2 | 0 23 15 | 15 56 26·99 | 19 22 33·4 | 67 39 | 48 S. |
| 1 | $\omega^1$ Scorpii - | 4.5 | 0 54 37 | 15 57 46·07 | S. 20 14 34·9 | S. 17 47 | 5 N. |
| 1 | $\omega^2$ Scorpii - | 4.5 | 1 8 17 | 15 58 20·51 | S. 20 26 35·6 | S. 6 43 | 15 N. |
| 1 | ω Ophiuchi | 5 | 10 49 49 | 16 22 58·29 | 21 7 39·3 | N. 1 18 | 20 N. |
| 1 | Mars - - | - | 11 42 23 | 16 25 12·88 | 21 14 0·4 | N. 5 19 | 23 N. |
| 2 | ρ Ophiuchi | 4.5 | 5 41 56 | 17 11 43·52 | S. 20 56 16·7 | S. 35 43 | 17 S. |

## ELEMENTS

...itating the Computation of Occultations of certain Stars by the Moon.

| ...ch. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ☉ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ☉ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| ...b. 2 | D Ophiuchi | 5 | 14 18 3 | 17 34 9·39 | S. 21 35 58·7 | N. 9 59 | 26 N. 28 S. |
| 3 | $\mu^1$ Sagittarii | 3.4 | 1 55 32 | 18 4 30·16 | 21 5 32·7 | 5 30 | 24 N. 32 S. |
| 3 | $\xi^1$ Sagittarii | 6 | 18 44 27 | 18 48 7·99 | 20 51 4·2 | 64 2 | 69 N. 29 N. |
| 4 | $d$ Sagittarii | 5 | 2 42 25 | 19 8 34·14 | S. 19 13 16·1 | N. 14 43 | 38 N. 24 S. |
| 4 | $\rho^1$ Sagittarii | 5 | 4 19 16 | 19 12 41·16 | S. 18 7 53·1 | S. 39 49 | 11 S. 88 S. |
| 8 | $\lambda$ Piscium - | 5 | 21 48 30 | 23 34 8·89 | N. 0 55 45·9 | N. 76 58 | 90 N. 55 N. |
| 12 | $\pi$ Arietis- - | 5 | 16 22 17 | 2 40 40·43 | 16 49 1·8 | N. 26 2 | 68 N. 2 S. |
| 13 | $\delta$ Arietis- - | 4 | 3 2 44 | 3 2 47·72 | N. 19 8 14·9 | S. 45 41 | 11 S. 71 S. |
| 14 | $\omega^2$ Tauri - - | 5.6 | 10 19 37 | 4 8 12·53 | N. 20 11 36·5 | N. 29 23 | 75 N. 9 N. |
| 15 | $\iota$ Tauri - - | 4.5 | 7 57 50 | 4 53 52·14 | 21 21 47·4 | N. 0 10 | 37 N. 16 S. |
| 15 | $o$ Tauri - - | 5 | 19 32 16 | 5 18 21·86 | 21 47 54·4 | S. 23 3 | 13 N. 41 S. |
| 16 | $\zeta$ Tauri - - | 3.4 | 0 17 15 | 5 28 25·21 | N. 21 2 31·4 | N. 19 40 | 61 N. 3 N. |
| 16 | $\chi^1$ Orionis - | 5 | 8 14 18 | 5 45 14·89 | N. 20 14 28·8 | N. 58 14 | 90 N. 46 N. |
| 16 | $\chi^3$ Orionis - | 5 | 12 43 58 | 5 54 45·27 | 20 8 7·1 | 56 29 | 90 N. 43 N. |
| 17 | $\nu$ Geminor. | 5 | 0 35 37 | 6 19 47·97 | 20 18 11·4 | 15 27 | 55 N. 5 S. |
| 19 | 29 Cancri - | 6 | 10 19 29 | 8 20 0·43 | N. 14 43 2·6 | N. 14 46 | 53 N. 16 S. |
| 20 | $\alpha^2$ Cancri - | 5 | 1 1 3 | 8 50 2·94 | N. 12 27 1·9 | N. 22 2 | 62 N. 11 S. |
| 21 | $\pi$ Leonis - | 4.5 | 7 35 39 | 9 52 3·95 | 8 46 51·9 | S. 68 43 | 40 S. 81 S. |
| 21 | C Sextantis | 6 | 10 53 0 | 9 58 43·06 | 6 21 41·0 | N. 40 12 | 90 N. 3 N. |
| 22 | $u$ Leonis - | 6 | 11 5 35 | 10 47 46·43 | N. 1 33 27·5 | N. 49 49 | 90 N. 12 N. |
| 22 | $g^1$ Leonis - | 6 | 14 59 39 | 10 55 42·98 | N. 0 49 44·4 | N. 47 13 | 90 N. 9 N. |
| 23 | $e$ Leonis - | 4.5 | 4 3 12 | 11 22 26·43 | S. 2 9 11·4 | N. 69 41 | 88 N. 39 N. |
| 25 | $\alpha$ Virginis - | 1 | 10 3 8 | 13 17 4·54 | 10 21 14·4 | S. 64 25 | 33 S. 90 S. |
| 25 | $i$ Virginis - | 5 | 10 44 1 | 13 18 34·95 | S. 11 54 6·4 | N. 21 14 | 55 N. 17 S. |
| 27 | $\varkappa$ Libræ - - | 5 | 20 25 19 | 15 33 3·62 | S. 19 10 17·3 | S. 18 52 | 6 N. 57 S. |
| 28 | $\lambda$ Libræ - - | 5 | 1 1 56 | 15 44 22·68 | 19 41 56·2 | 10 25 | 13 N. 48 S. |
| 28 | $\beta^1$ Scorpii - | 2 | 5 55 29 | 15 56 27·86 | 19 22 36·2 | 51 27 | 28 S. 90 S. |
| 28 | $\omega^1$ Scorpii - | 4.5 | 6 27 23 | 15 57 46·95 | S. 20 14 37·7 | S. 1 36 | 20 N. 39 S. |
| 28 | $\omega^2$ Scorpii - | 4.5 | 6 41 16 | 15 58 21·39 | S. 20 26 38·4 | N. 9 29 | 30 N. 28 S. |
| 28 | $\psi$ Ophiuchi | 5 | 13 24 6 | 16 15 4·24 | 19 40 6·7 | S. 61 7 | 41 S. 90 S. |
| 28 | $\omega$ Ophiuchi | 5 | 16 33 54 | 16 22 59·17 | 21 7 41·6 | N. 17 13 | 36 N. 21 S. |
| ...ar. 1 | $\rho$ Ophiuchi | 4.5 | 11 53 34 | 17 11 44·37 | S. 20 56 18·0 | S. 20 42 | 4 S. 59 S. |
| 1 | 2 Sagittarii | 6 | 18 53 1 | 17 29 27·82 | S. 21 48 41·6 | N. 35 5 | 55 N. 3 S. |
| 1 | D Ophiuchi | 5 | 20 44 23 | 17 34 10·22 | 21 35 59·6 | 24 27 | 41 N. 14 S. |
| 2 | $\mu^1$ Sagittarii | 3.4 | 8 43 19 | 18 4 30·95 | 21 5 33·0 | 19 5 | 38 N. 19 S. |
| 3 | $d$ Sagittarii | 5 | 10 18 57 | 19 8 34·81 | S. 19 13 15·6 | N. 25 51 | 50 N. 13 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the M

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | | Li Pa |
|---|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | | |
| | | | h m s | h m s | ° ′ ″ | ′ ″ | ☾ | Lati ° |
| Mar. 3 | $\rho^1$ Sagittarii | 5 | 11 59 1 | 19 12 41·83 | S. 18 7 52·7 | S. 28 52 | | 1 S. |
| 3 | $e^2$ Sagittarii | 5 | 20 31 58 | 19 33 39·77 | 16 28 48·5 | 68 5 | | 43 S. |
| 4 | $\beta^2$ Capricorni | 3.4 | 12 34 35 | 20 12 18·48 | 15 15 52·1 | S. 7 15 | | 23 N. |
| 5 | $\nu$ Aquarii - | 5 | 9 28 16 | 21 1 9·23 | S. 11 59 39·1 | N. 5 44 | | 38 N. |
| 5 | $\xi$ Aquarii - | 5 | 21 56 18 | 21 29 30·00 | S. 8 32 40·7 | S. 62 2 | | 27 S. |
| 12 | $\pi$ Arietis- - | 5 | 0 57 4 | 2 40 40·03 | N. 16 48 59·9 | N. 10 53 | | 49 N. |
| 12 | 53 Arietis- - | 6 | 9 32 52 | 2 58 43·21 | 17 16 40·5 | N. 38 44 | | 90 N. |
| 12 | $\delta$ Arietis- - | 4 | 11 28 54 | 3 2 47·29 | N. 19 8 13·2 | S. 61 14 | | 33 S. |
| 14 | $\iota$ Tauri - - | 4.5 | 15 59 21 | 4 53 51·65 | N. 21 21 46·7 | S. 15 54 | | 20 N. |
| 15 | $o$ Tauri - - | 5 | 3 33 14 | 5 18 21·35 | 21 47 53·9 | S. 38 54 | | 5 S. |
| 15 | $\zeta$ Tauri - - | 3.4 | 8 18 30 | 5 28 24·73 | 21 2 31·0 | N. 3 56 | | 41 N. |
| 15 | $\chi^1$ Orionis - | 5 | 16 16 38 | 5 45 14·42 | N. 20 14 28·6 | N. 42 44 | | 90 N. |
| 15 | $\chi^3$ Orionis - | 5 | 20 47 15 | 5 54 44·81 | N. 20 8 6·9 | N. 41 7 | | 90 N. |
| 16 | $\nu$ Geminor. | 5 | 8 42 20 | 6 19 47·52 | 20 18 11·5 | 0 33 | | 38 N. |
| 19 | $\alpha^1$ Cancri - - | 6 | 8 23 19 | 8 47 29·85 | 12 12 38·9 | 38 25 | | 90 N. |
| 19 | $\alpha^3$ Cancri - - | 5 | 9 38 39 | 8 50 2·74 | N. 12 27 2·0 | N. 12 38 | | 50 N. |
| 19 | $\kappa$ Cancri- - | 5.6 | 14 15 5 | 8 59 23·29 | N. 11 17 4·5 | N. 39 53 | | 90 N. |
| 20 | $\pi$ Leonis - | 4.5 | 16 15 25 | 9 52 3·88 | N. 8 46 51·6 | S. 74 27 | | 55 S. |
| 22 | $e$ Leonis - | 4.5 | 12 19 0 | 11 22 26·59 | S. 2 9 13·4 | N. 70 10 | | 88 N. |
| 24 | $\alpha$ Virginis - | 1 | 17 10 40 | 13 17 4·99 | S. 10 21 17·4 | S. 56 40 | | 22 S. |
| 24 | $i$ Virginis - | 5 | 17 50 33 | 13 18 35·41 | S. 11 54 9·6 | N. 29 4 | | 63 N. |
| 25 | A.S.C.1610 | 6 | 12 49 36 | 14 2 25·48 | 15 34 10·2 | 57 41 | | 74 N. |
| 26 | $\iota^1$ Libræ - - | 5.6 | 14 13 38 | 15 3 26·71 | 19 12 7·6 | N. 68 45 | | 71 N. |
| 27 | $\kappa$ Libræ - - | 5 | 2 12 41 | 15 33 4·39 | S. 19 10 19·9 | S. 6 3 | | 17 N. |
| 27 | $\lambda$ Libræ - - | 5 | 6 44 33 | 15 44 23·44 | S. 19 41 58·6 | N. 2 39 | | 25 N. |
| 27 | $\beta^1$ Scorpii - | 2 | 11 33 30 | 15 56 28·62 | 19 22 38·4 | S. 38 10 | | 14 S. |
| 27 | $\omega^1$ Scorpii - | 4.5 | 12 4 56 | 15 57 47·72 | 20 14 39·9 | N. 11 42 | | 32 N. |
| 27 | $\omega^2$ Scorpii - | 4.5 | 12 18 37 | 15 58 22·16 | S. 20 26 40·6 | N. 22 48 | | 44 N. |
| 27 | $\nu$ Scorpii - | 4 | 14 9 52 | 16 3 2·41 | S. 19 3 10·8 | S. 67 58 | | 50 S. |
| 27 | A.S.C.1854 | 6 | 14 47 25 | 16 4 37·09 | 20 59 59·0 | N. 46 30 | | 69 N |
| 27 | $\psi$ Ophiuchi | 5 | 18 55 59 | 16 15 5·03 | 19 40 8·5 | S. 47 32 | | 25 S |
| 27 | $\omega$ Ophiuchi | 5 | 22 3 33 | 16 22 59·98 | S. 21 7 43·4 | N. 30 54 | | 51 N |
| 28 | $\rho$ Ophiuchi | 4.5 | 17 14 22 | 17 11 45·21 | S. 20 56 18·9 | S. 6 35 | | 9 |
| 29 | D Ophiuchi | 5 | 2 4 6 | 17 34 11·09 | 21 36 0·0 | N. 38 37 | | 61 |
| 29 | $\mu^1$ Sagittarii | 3.4 | 14 4 34 | 18 4 31·79 | 21 5 32·8 | 33 10 | | 55 |
| 30 | $d$ Sagittarii | 5 | 15 54 43 | 19 8 35·61 | S. 19 13 14·4 | N. 39 15 | | 67 |

## ELEMENTS

For facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R.A. of ☾ and ✱. | At Greenwich Mean Time of ♂ *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| Mar. 30 | $\rho^1$ Sagittarii | 5 | 17 36 12 | 19 12 42·61 | S. 18 7 51·4 | S. 15 32 | 11 N. 53 S. |
| 31 | $e^2$ Sagittarii | 5 | 2 17 20 | 19 33 40·55 | 16 28 46·9 | S. 55 10 | 27 S. 90 S. |
| 31 | $\beta^2$ Capricorni | 3.4 | 18 38 29 | 20 12 19·17 | 15 15 50·1 | N. 4 39 | 34 N. 32 S. |
| Apr. 1 | $\nu$ Aquarii - | 5 | 16 0 39 | 21 1 9·82 | S. 11 59 37·0 | N. 15 52 | 48 N. 22 S. |
| 2 | $\xi$ Aquarii - | 5 | 4 46 46 | 21 29 30·55 | S. 8 32 38·7 | S. 53 9 | 17 S. 90 S. |
| 8 | $\pi$ Arietis - - | 5 | 9 20 40 | 2 40 39·82 | N. 16 48 58·6 | N. 3 0 | 40 N. 24 S. |
| 8 | $\delta$ Arietis- - | 4 | 19 48 57 | 3 2 47·03 | 19 8 11·6 | S. 69 53 | 55 S. 71 S. |
| 11 | $\iota$ Tauri - - | 4.5 | 0 1 38 | 4 53 51·21 | N. 21 21 45·7 | S. 27 5 | 8 N. 47 S. |
| 11 | $o$ Tauri - - | 5 | 11 33 42 | 5 18 20·89 | N. 21 47 53·2 | S. 50 25 | 19 S. 68 S. |
| 11 | $\zeta$ Tauri - - | 3.4 | 16 18 37 | 5 28 24·26 | 21 2 30·4 | S. 7 41 | 29 N. 24 S. |
| 12 | $\chi^1$ Orionis - | 5 | 0 16 42 | 5 45 13·92 | 20 14 28·2 | N. 30 58 | 78 N. 13 N. |
| 12 | $\chi^5$ Orionis - | 5 | 4 47 37 | 5 54 44·31 | N. 20 8 6·6 | N. 29 18 | 75 N. 11 N. |
| 12 | $E^1$ Orionis - | 6 | 8 39 28 | 6 2 51·34 | N. 19 49 7·9 | N. 39 51 | 90 N. 21 N. |
| 12 | $\nu$ Geminor. | 5 | 16 44 43 | 6 19 47·03 | 20 18 11·4 | S. 11 23 | 25 N. 32 S. |
| 15 | $A^2$ Cancri- - | 6 | 12 39 45 | 8 38 27·48 | 12 40 22·3 | N. 39 26 | 90 N. 8 N. |
| 15 | $\alpha^2$ Cancri- - | 5 | 18 27 0 | 8 50 2·35 | N. 12 27 2·9 | N. 2 5 | 39 N. 30 S. |
| 18 | $g^1$ Leonis- - | 6 | 8 59 57 | 10 55 42·91 | N. 0 49 42·8 | N. 39 34 | 88 N. 1 N. |
| 18 | $e$ Leonis- - | 4.5 | 21 56 42 | 11 22 26·49 | S. 2 9 13·8 | N. 65 6 | 88 N. 31 N. |
| 21 | $\alpha$ Virginis - | 1 | 2 29 10 | 13 17 5·19 | 10 21 18·8 | S. 56 24 | 21 S. 90 S. |
| 21 | $i$ Virginis - | 5 | 3 8 26 | 13 18 35·62 | S. 11 54 11·3 | N. 29 24 | 63 N. 10 S. |
| 23 | $\kappa$ Libræ - - | 5 | 10 11 56 | 15 33 4·95 | S. 19 10 21·4 | S. 0 50 | 22 N. 38 S. |
| 23 | $\lambda$ Libræ - - | 5 | 14 35 58 | 15 44 24·02 | 19 42 0·0 | N. 8 10 | 30 N. 29 S. |
| 23 | $\beta^1$ Scorpii - | 2 | 19 16 30 | 15 56 29·24 | 19 22 39·6 | S. 32 20 | 8 S. 74 S. |
| 23 | $\omega^1$ Scorpii - | 4.5 | 19 47 0 | 15 57 48·34 | S. 20 14 41·2 | N. 17 35 | 38 N. 20 S. |
| 23 | $\omega^2$ Scorpii - | 4.5 | 20 0 17 | 15 58 22·78 | S. 20 26 41·9 | N. 28 41 | 50 N. 10 S. |
| 23 | $\nu$ Scorpii - | 4 | 21 48 16 | 16 3 3·03 | 19 3 11·9 | S. 61 58 | 40 S. 90 S. |
| 24 | $\psi$ Ophiuchi | 5 | 2 25 59 | 16 15 5·70 | 19 40 9·5 | S. 41 15 | 18 S. 90 S. |
| 24 | $\omega$ Ophiuchi | 5 | 5 28 3 | 16 23 0·67 | S. 21 7 44·4 | N. 37 22 | 59 N. 1 S. |
| 25 | $\rho$ Ophiuchi | 4.5 | 0 5 45 | 17 11 45·99 | S. 20 56 19·1 | N. 0 50 | 16 N. 36 S. |
| 25 | D Ophiuchi | 5 | 8 41 6 | 17 34 11·88 | 21 35 59·8 | 46 24 | 68 N. 8 N. |
| 25 | $\mu^1$ Sagittarii | 3.4 | 20 23 28 | 18 4 32·60 | 21 5 32·1 | 41 21 | 66 N. 3 N. |
| 26 | $d$ Sagittarii | 5 | 21 42 25 | 19 8 36·44 | S. 19 13 12·4 | N. 47 57 | 71 N. 10 N. |
| 26 | $\rho^1$ Sagittarii | 5 | 23 22 18 | 19 12 43·44 | S. 18 7 49·3 | S. 6 49 | 19 N. 43 S. |
| 27 | $e^2$ Sagittarii | 5 | 7 56 8 | 19 33 41·37 | 16 28 44·5 | S. 46 24 | 17 S. 90 S. |
| 28 | $\beta^2$ Capricorni | 3.4 | 0 8 0 | 20 12 20·01 | 15 15 47·0 | N. 13 21 | 42 N. 24 S. |
| 28 | $\nu$ Aquarii - | 5 | 21 26 52 | 21 1 10·58 | S. 11 59 33·5 | N. 24 10 | 57 N. 14 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ☉ in R.A. of ☾ and ✱. | At Greenwich Mean Time of ☉ | | | Limiti Parall |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ′ ″ | Latitu ° |
| Apr. 29 | ξ Aquarii - | 5 | 10 15 34 | 21 29 31·27 | S. 8 32 35·2 | S. 45 15 | 9 S. |
| May 8 | ι Tauri - - | 4.5 | 7 24 59 | 4 53 51·00 | N. 21 21 44·9 | 30 30 | 5 N. |
| 8 | o Tauri - - | 5 | 18 56 9 | 5 18 20·64 | 21 47 52·5 | 54 8 | 25 S. |
| 8 | ζ Tauri - - | 3.4 | 23 40 44 | 5 28 23·99 | N. 21 2 29·8 | S. 11 31 | 25 N. |
| 9 | $\chi^1$ Orionis - | 5 | 7 38 25 | 5 45 13·64 | N. 20 14 27·7 | N. 26 57 | 71 N. |
| 9 | $\chi^2$ Orionis - | 6 | 7 54 20 | 5 45 47·20 | 19 42 45·3 | 58 14 | 90 N. |
| 9 | $\chi^5$ Orionis - | 5 | 12 9 13 | 5 54 44·01 | 20 8 6·2 | N. 25 11 | 68 N. |
| 10 | ν Geminor. | 5 | 0 6 35 | 6 19 46·69 | N. 20 18 11·2 | S. 15 43 | 20 N. |
| 13 | $\alpha^2$ Cancri - | 5 | 2 23 39 | 8 50 1·93 | N. 12 27 4·0 | S. 2 33 | 34 N. |
| 13 | κ Cancri - | 5.6 | 7 8 40 | 8 59 22·50 | N. 11 17 6·5 | N. 24 57 | 66 N. |
| 16 | e Leonis - | 4.5 | 7 25 36 | 11 22 26·24 | S. 2 9 13·0 | N. 61 56 | 88 N. |
| 18 | α Virginis - | 1 | 12 46 26 | 13 17 5·18 | S. 10 21 18·8 | S. 57 53 | 23 S. |
| 18 | i Virginis - | 5 | 13 25 59 | 13 18 35·61 | S. 11 54 11·5 | N. 27 57 | 62 N. |
| 19 | A.S.C. 1610 | 6 | 8 7 50 | 14 2 25·91 | 15 34 12·8 | 58 59 | 74 N. |
| 20 | $\iota^1$ Libræ - | 5.6 | 8 46 16 | 15 3 27·48 | 19 12 10·4 | N. 72 57 | 71 N. |
| 20 | κ Libræ - | 5 | 20 15 56 | 15 33 5·29 | S. 19 10 22·1 | S. 0 41 | 22 N. |
| 21 | λ Libræ - | 5 | 0 35 38 | 15 44 24·41 | S. 19 42 0·6 | N. 8 25 | 30 N. |
| 21 | $\beta^1$ Scorpii - | 2 | 5 11 2 | 15 56 29·65 | 19 22 40·0 | S. 31 59 | 8 S. |
| 21 | $\omega^1$ Scorpii - | 4.5 | 5 40 58 | 15 57 48·76 | 20 14 41·8 | N. 17 57 | 38 N. |
| 21 | $\omega^2$ Scorpii - | 4.5 | 5 54 0 | 15 58 23·21 | S. 20 26 42·5 | N. 29 3 | 50 N. |
| 21 | ν Scorpii - | 4 | 7 39 51 | 16 3 3·46 | S. 19 3 12·2 | S. 61 34 | 39 S. |
| 21 | ψ Ophiuchi | 5 | 12 11 46 | 16 15 6·15 | 19 40 9·8 | S. 40 45 | 17 S. |
| 21 | ω Ophiuchi | 5 | 15 9 47 | 16 23 1·14 | 21 7 44·8 | N. 37 56 | 60 N. |
| 22 | ρ Ophiuchi | 4.5 | 9 18 58 | 17 11 46·57 | S. 20 56 18·8 | N. 1 42 | 16 N. |
| 22 | 2 Sagittarii | 6 | 15 54 15 | 17 29 30·10 | S. 21 48 41·7 | N. 57 55 | 68 N. |
| 22 | D Ophiuchi | 5 | 17 39 22 | 17 34 12·52 | 21 35 59·3 | 47 23 | 68 N. |
| 23 | $\mu^1$ Sagittarii | 3.4 | 5 0 2 | 18 4 33·32 | 21 5 31·0 | 42 27 | 67 N. |
| 24 | d Sagittarii | 5 | 5 29 33 | 19 8 37·25 | S. 19 13 10·1 | N. 49 13 | 71 N. |
| 24 | $\rho^1$ Sagittarii | 5 | 7 6 10 | 19 12 44·25 | S. 18 7 46·8 | S. 5 33 | 20 N. |
| 24 | $e^2$ Sagittarii | 5 | 15 23 23 | 19 33 42·17 | 16 28 41·6 | S. 45 7 | 15 S. |
| 25 | $\beta^2$ Capricorni | 3.4 | 7 5 16 | 20 12 20·83 | 15 15 43·5 | N. 14 38 | 43 N. |
| 26 | ν Aquarii - | 5 | 3 49 28 | 21 1 11·44 | S. 11 59 29·2 | N. 25 22 | 58 N. |
| 26 | ξ Aquarii - | 5 | 16 20 51 | 21 29 32·09 | S. 8 32 30·7 | S. 44 8 | 7 S. |
| June 1 | π Arietis- - | 5 | 22 46 15 | 2 40 40·35 | N. 16 48 59·8 | N. 2 24 | 39 N. |
| 6 | ν Geminor. | 5 | 6 37 39 | 6 19 46·64 | 20 18 11·0 | S. 14 11 | 22 N. |
| 9 | $\alpha^2$ Cancri- - | 5 | 9 4 2 | 8 50 1·66 | N. 12 27 5·0 | N. 0 33 | 37 N. |

## ELEMENTS

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| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Latitude. ° ° |
| June 12 | *e* Leonis - | 4.5 | 15 27 3 | 11 22 25·95 | S. 2 9 11·4 | N. 66 2 | 88 N. 34 N. |
| 14 | α Virginis - | 1 | 22 18 33 | 13 17 5·02 | 10 21 17·8 | S. 54 22 | 20 S. 90 S. |
| 14 | *i* Virginis - | 5 | 22 59 11 | 13 18 35·45 | 11 54 10·7 | N. 31 27 | 66 N. 7 S. |
| 17 | κ Libræ - - | 5 | 6 54 56 | 15 33 5·41 | S. 19 10 22·1 | N. 0 50 | 24 N. 36 S. |
| 17 | λ Libræ - - | 5 | 11 16 56 | 15 44 24·55 | S. 19 42 0·6 | N. 9 43 | 31 N. 28 S. |
| 17 | $\beta^1$ Scorpii - | 2 | 15 54 14 | 15 56 29·82 | 19 22 40·0 | S. 30 54 | 6 S. 72 S. |
| 17 | $\omega^1$ Scorpii - | 4.5 | 16 24 21 | 15 57 48·94 | 20 14 41·9 | N. 19 0 | 39 N. 19 S. |
| 17 | $\omega^2$ Scorpii - | 4.5 | 16 37 27 | 15 58 23·39 | S. 20 26 42·6 | N. 30 6 | 51 N. 9 S. |
| 17 | ν Scorpii - | 4 | 18 23 49 | 16 3 3·65 | S. 19 3 12·1 | S. 60 36 | 37 S. 90 S. |
| 17 | ψ Ophiuchi | 5 | 22 56 43 | 16 15 6·37 | 19 40 9·7 | S. 40 1 | 16 S. 88 S. |
| 18 | ω Ophiuchi | 5 | 1 55 3 | 16 23 1·39 | 21 7 44·9 | N. 38 30 | 60 N. 1 S. |
| 18 | ρ Ophiuchi | 4.5 | 20 0 30 | 17 11 46·94 | S. 20 56 18·5 | N. 1 18 | 16 N. 35 S. |
| 19 | D Ophiuchi | 5 | 4 16 0 | 17 34 12·95 | S. 21 35 58·9 | N. 46 31 | 68 N. 7 N. |
| 19 | $\mu^1$ Sagittarii | 3.4 | 15 26 54 | 18 4 33·81 | 21 5 30·2 | 40 57 | 64 N. 2 N. |
| 20 | *d* Sagittarii | 5 | 15 24 31 | 19 8 37·87 | 19 13 8·2 | N. 46 17 | 71 N. 7 N. |
| 20 | $\rho^1$ Sagittarii | 5 | 16 58 35 | 19 12 44·87 | S. 18 7 44·8 | S. 8 34 | 17 N. 45 S. |
| 21 | $e^2$ Sagittarii | 5 | 1 2 1 | 19 33 42·85 | S. 16 28 39·0 | S. 48 35 | 18 S. 90 S. |
| 21 | $\beta^2$ Capricorni | 3.4 | 16 15 1 | 20 12 21·54 | 15 15 40·4 | N. 10 19 | 39 N. 27 S. |
| 22 | ν Aquarii - | 5 | 12 17 51 | 21 1 12·21 | 11 59 25·1 | N. 20 4 | 52 N. 18 S. |
| 23 | ξ Aquarii - | 5 | 0 23 50 | 21 29 32·91 | S. 8 32 26·0 | S. 49 57 | 12 S. 90 S. |
| 25 | λ Piscium - | 5 | 9 32 2 | 23 34 11·21 | N. 0 55 59·0 | N. 70 39 | 90 N. 40 N. |
| 25 | 22 Piscium - | 6 | 14 17 4 | 23 44 4·14 | 2 4 25·0 | N. 58 17 | 90 N. 22 N. |
| 29 | π Arietis - | 5 | 4 24 25 | 2 40 41·09 | 16 49 2·8 | S. 2 28 | 34 N. 30 S. |
| July 1 | ι Tauri - - | 4.5 | 19 50 41 | 4 53 51·61 | N. 21 21 45·4 | S. 31 4 | 4 N. 53 S. |
| 6 | $\alpha^2$ Cancri - - | 5 | 14 53 21 | 8 50 1·59 | N. 12 27 5·9 | N. 7 12 | 44 N. 25 S. |
| 9 | $g^1$ Leonis - | 6 | 7 57 27 | 10 55 42·07 | N. 0 49 47·3 | N. 50 24 | 90 N. 14 N. |
| 12 | α Virginis - | 1 | 5 54 10 | 13 17 4·75 | S. 10 21 16·3 | S. 43 29 | 9 S. 90 S. |
| 12 | *i* Virginis - | 5 | 6 36 5 | 13 18 35·17 | S. 11 54 9·2 | N. 42 18 | 77 N. 4 N. |
| 14 | κ Libræ - - | 5 | 16 23 16 | 15 33 5·29 | S. 19 10 21·6 | N. 8 35 | 31 N. 28 S. |
| 14 | λ Libræ - - | 5 | 20 53 20 | 15 44 24·45 | 19 42 0·3 | N. 17 7 | 39 N. 20 S. |
| 15 | $\beta^1$ Scorpii - | 2 | 1 38 51 | 15 56 29·74 | 19 22 39·6 | S. 23 55 | 0 62 S. |
| 15 | $\omega^1$ Scorpii - | 4.5 | 2 9 49 | 15 57 48·86 | S. 20 14 41·6 | N. 25 57 | 47 N. 12 S. |
| 15 | $\omega^2$ Scorpii - | 4.5 | 2 23 18 | 15 58 23·31 | S. 20 26 42·4 | N. 37 1 | 61 N. 2 S. |
| 15 | ν Scorpii - | 4 | 4 12 44 | 16 3 3·58 | 19 3 11·7 | S. 53 51 | 30 S. 90 S. |
| 15 | ψ Ophiuchi | 5 | 8 53 9 | 16 15 6·33 | 19 40 9·4 | S. 33 41 | 11 S. 76 S. |
| 15 | ω Ophiuchi | 5 | 11 56 12 | 16 23 1·36 | S. 21 7 44·8 | N. 44 34 | 69 N. 6 N. |

## ELEMENTS

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| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallel. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ′ ″ | Latitude. ° ° |
| July 16 | ρ Ophiuchi | 4.5 | 6 26 7 | 17 11 47·01 | S. 20 56 18·3 | N. 5 31 | 20 N. 31 S. |
| 16 | 2 Sagittarii | 6 | 13 4 30 | 17 29 30·63 | 21 48 41·2 | 60 39 | 68 N. 25 N. |
| 16 | D Ophiuchi | 5 | 14 50 2 | 17 34 13·07 | 21 35 58·7 | 49 49 | 68 N. 11 N. |
| 17 | $\mu^1$ Sagittarii | 3.4 | 2 9 15 | 18 4 34·00 | S. 21 5 29·8 | N. 42 58 | 67 N. 4 N. |
| 18 | *d* Sagittarii | 5 | 2 11 57 | 19 8 38·22 | S. 19 13 7·1 | N. 45 24 | 71 N. 6 N. |
| 18 | $\rho^1$ Sagittarii | 5 | 3 45 44 | 19 12 45·23 | 18 7 43·4 | S. 9 39 | 16 N. 46 S. |
| 18 | $e^2$ Sagittarii | 5 | 11 46 33 | 19 33 43·24 | 16 28 37·3 | S. 50 41 | 20 S. 90 S. |
| 19 | $\beta^2$ Capricorni | 3.4 | 2 49 32 | 20 12 22·04 | S. 15 15 38·1 | N. 6 20 | 35 N. 31 S. |
| 19 | ν Aquarii - | 5 | 22 30 2 | 21 1 12·78 | S. 11 59 22·0 | N. 13 41 | 45 N. 24 S. |
| 20 | ξ Aquarii - | 5 | 10 18 26 | 21 29 33·52 | 8 32 22·2 | S. 57 40 | 20 S. 90 S. |
| 20 | $c^1$ Capricorni | 6 | 13 22 1 | 21 36 47·28 | 9 46 57·8 | N. 53 16 | 80 N. 13 N. |
| 21 | κ Aquarii - | 6 | 12 24 18 | 22 29 47·38 | S. 5 1 7·0 | N. 50 49 | 85 N. 11 N. |
| 22 | λ Piscium - | 5 | 17 43 32 | 23 34 11·98 | N. 0 56 4·2 | N. 58 25 | 90 N. 21 N. |
| 24 | δ Piscium - | 5 | 1 6 8 | 0 40 41·85 | 6 44 45·7 | N. 73 48 | 90 N. 51 N. |
| 26 | π Arietis - | 5 | 10 39 7 | 2 40 41·93 | 16 49 6·7 | S. 14 31 | 22 N. 42 S. |
| 29 | ι Tauri - - | 4.5 | 1 54 25 | 4 53 52·33 | N. 21 21 46·9 | S. 39 5 | 5 S. 68 S. |
| 29 | ο Tauri - - | 5 | 13 30 16 | 5 18 21·80 | N. 21 47 53·6 | S. 60 51 | 37 S. 68 S. |
| 29 | ζ Tauri - - | 3.4 | 18 16 23 | 5 28 25·08 | 21 2 31·0 | S. 17 27 | 18 N. 33 S. |
| 30 | $\chi^1$ Orionis - | 5 | 2 16 2 | 5 45 14·62 | 20 14 28·9 | N. 22 24 | 64 N. 5 N. |
| 30 | $\chi^5$ Orionis - | 5 | 6 47 37 | 5 54 44·92 | N. 20 8 7·2 | N. 21 25 | 62 N. 3 N. |
| 30 | ν Geminor. | 5 | 18 45 47 | 6 19 47·42 | N. 20 18 11·6 | S. 17 17 | 18 N. 39 S. |
| Aug. 8 | α Virginis - | 1 | 11 38 44 | 13 17 4·43 | S. 10 21 14·4 | S. 28 37 | 6 N. 69 S. |
| 8 | *i* Virginis - | 5 | 12 21 20 | 13 18 34·85 | 11 54 7·3 | N. 57 11 | 78 N. 22 N. |
| 10 | $\alpha^2$ Libræ - - | 3 | 2 12 41 | 14 42 21·77 | S. 15 23 47·6 | S. 66 55 | 44 S. 90 S. |
| 10 | κ Libræ - - | 5 | 23 39 24 | 15 33 4·96 | S. 19 10 20·7 | N. 22 26 | 46 N. 15 S. |
| 11 | λ Libræ - - | 5 | 4 18 41 | 15 44 24·11 | 19 41 59·4 | N. 30 42 | 55 N. 7 S. |
| 11 | $\beta^1$ Scorpii - | 2 | 9 14 10 | 15 56 29·43 | 19 22 38·8 | S. 10 38 | 11 N. 47 S. |
| 11 | $\omega^1$ Scorpii - | 4.5 | 9 46 13 | 15 57 48·54 | S. 20 14 40·9 | N. 39 11 | 65 N. 1 N. |
| 11 | $\omega^2$ Scorpii - | 4.5 | 10 0 10 | 15 58 22·99 | S. 20 26 41·7 | N. 50 15 | 70 N. 14 N. |
| 11 | ν Scorpii - | 4 | 11 53 28 | 16 3 3·28 | 19 3 10·9 | S. 40 44 | 17 S. 90 S. |
| 11 | ψ Ophiuchi | 5 | 16 43 51 | 16 15 6·03 | 19 40 8·7 | S. 20 55 | 1 N. 59 S. |
| 11 | ω Ophiuchi | 5 | 19 53 26 | 16 23 1·07 | S. 21 7 44·3 | N. 57 6 | 69 N. 22 N. |
| 12 | 28 Scorpii - | 6 | 9 17 45 | 16 57 1·14 | S. 21 20 34·7 | N. 44 7 | 69 N. 6 N. |
| 12 | ρ Ophiuchi | 4.5 | 15 2 52 | 17 11 46·79 | 20 56 18·1 | 16 23 | 31 N. 21 S. |
| 12 | D Ophiuchi | 5 | 23 44 7 | 17 34 12·89 | 21 35 58·6 | 59 49 | 68 N. 25 N. |
| 13 | $\mu^1$ Sagittarii | 3.4 | 11 25 24 | 18 4 33·88 | S. 21 5 29·8 | N. 51 40 | 69 N. 14 N. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | | | | ☾ | Latitude. |
| | | | h m s | h m s | ° ′ ″ | ′ ″ | ° ° |
| Aug. 13 | $\mu^2$ Sagittarii | 6 | 11 59 27 | 18 6 2·46 | S. 20 45 55·7 | N. 33 42 | 55 N. 5 S. |
| 14 | $d$ Sagittarii | 5 | 12 7 32 | 19 8 38·23 | 19 13 6·8 | N. 50 56 | 71 N. 12 N. |
| 14 | $\rho^1$ Sagittarii | 5 | 13 43 27 | 19 12 45·25 | 18 7 43·0 | S. 4 21 | 20 N. 41 S. |
| 14 | $e^2$ Sagittarii | 5 | 21 54 9 | 19 33 43·30 | S. 16 28 36·6 | S. 46 34 | 16 S. 90 S. |
| 15 | $\beta^2$ Capricorni | 3.4 | 13 11 2 | 20 12 22·18 | S. 15 15 37·1 | N. 8 8 | 36 N. 29 S. |
| 16 | $\nu$ Aquarii - | 5 | 8 59 54 | 21 1 13·05 | 11 59 20·2 | N. 12 19 | 44 N. 25 S. |
| 16 | $\xi$ Aquarii - | 5 | 20 47 55 | 21 29 33·84 | S. 8 32 19·8 | S. 60 57 | 25 S. 90 S. |
| 19 | $\lambda$ Piscium - | 5 | 3 26 20 | 23 34 12·57 | N. 0 56 8·5 | N. 47 21 | 90 N. 8 N. |
| 20 | $\delta$ Piscium - | 5 | 10 2 47 | 0 40 42·53 | N. 6 44 50·3 | N. 59 53 | 90 N. 26 N. |
| 22 | $\pi$ Arietis - | 5 | 18 15 6 | 2 40 42·75 | 16 49 10·7 | S. 30 16 | 6 N. 61 S. |
| 25 | $\iota$ Tauri - - | 4.5 | 8 46 53 | 4 53 53·15 | 21 21 48·6 | 52 58 | 23 S. 69 S. |
| 26 | $\zeta$ Tauri - - | 3.4 | 1 5 53 | 5 28 25·88 | N. 21 2 32·1 | S. 30 22 | 4 N. 52 S. |
| 26 | $\chi^1$ Orionis - | 5 | 9 4 57 | 5 45 15·38 | N. 20 14 29·8 | N. 10 1 | 48 N. 7 S. |
| 26 | $\chi^4$ Orionis - | 5.6 | 13 24 3 | 5 54 19·77 | 19 41 15·4 | 36 36 | 90 N. 19 N. |
| 26 | $\chi^5$ Orionis - | 5 | 13 36 23 | 5 54 45·66 | 20 8 7·9 | 9 22 | 47 N. 9 S. |
| 26 | $E^1$ Orionis - | 6 | 17 28 40 | 6 2 52·61 | N. 19 49 9·1 | N. 20 50 | 61 N. 2 N. |
| 27 | $\nu$ Geminor. | 5 | 1 34 44 | 6 19 48·15 | N. 20 18 11·9 | S. 28 25 | 7 N. 53 S. |
| 30 | $\alpha^2$ Cancri - | 5 | 3 31 47 | 8 50 2·10 | N. 12 27 5·8 | N. 7 21 | 44 N. 24 S. |
| Sept. 4 | $\alpha$ Virginis - | 1 | 16 56 40 | 13 17 4·16 | S. 10 21 12·6 | S. 16 10 | 17 N. 53 S. |
| 4 | $i$ Virginis - | 5 | 17 39 0 | 13 18 34·57 | S. 11 54 5·4 | N. 69 42 | 78 N. 42 N. |
| 6 | $\alpha^2$ Libræ - - | 3 | 7 29 29 | 14 42 21·38 | S. 15 23 46·0 | S. 52 20 | 24 S. 90 S. |
| 7 | $\kappa$ Libræ - - | 5 | 5 9 37 | 15 33 4·51 | 19 10 19·3 | N. 37 24 | 65 N. 0 |
| 7 | $\lambda$ Libræ - - | 5 | 9 53 15 | 15 44 23·67 | 19 41 58·2 | 45 41 | 70 N. 9 N. |
| 7 | $\beta^1$ Scorpii - | 2 | 14 53 50 | 15 56 28·99 | S. 19 22 37·7 | N. 4 21 | 25 N. 32 S. |
| 7 | $\omega^1$ Scorpii - | 4.5 | 15 26 30 | 15 57 48·10 | S. 20 14 39·8 | N. 54 10 | 70 N. 19 N. |
| 7 | $\omega^2$ Scorpii - | 4.5 | 15 40 42 | 15 58 22·54 | 20 26 40·6 | N. 65 14 | 70 N. 35 N. |
| 7 | $\nu$ Scorpii - | 4 | 17 36 8 | 16 3 2·83 | 19 3 9·9 | S. 25 47 | 3 S. 65 S. |
| 7 | $\psi$ Ophiuchi | 5 | 22 32 23 | 16 15 5·59 | S. 19 40 7·8 | S. 6 1 | 14 N. 42 S. |
| 8 | $\omega$ Ophiuchi | 5 | 1 46 3 | 16 23 0·61 | S. 21 7 43·4 | N. 71 57 | 69 N. 50 N. |
| 8 | $\rho$ Ophiuchi | 4.5 | 21 24 29 | 17 11 46·36 | 20 56 17·7 | 30 40 | 48 N. 7 S. |
| 9 | D Ophiuchi | 5 | 6 20 55 | 17 34 12·46 | 21 35 58·5 | 73 41 | 68 N. 55 N. |
| 9 | $\mu^1$ Sagittarii | 3.4 | 18 24 9 | 18 4 33·49 | S. 21 5 29·8 | N. 64 51 | 69 N. 33 N. |
| 10 | $d$ Sagittarii | 5 | 19 55 33 | 19 8 37·93 | S. 19 13 7·2 | N. 62 6 | 71 N. 28 N. |
| 10 | $\rho^1$ Sagittarii | 5 | 21 34 40 | 19 12 44·96 | 18 7 43·3 | N. 6 40 | 31 N. 30 S. |
| 11 | $e^2$ Sagittarii | 5 | 6 1 37 | 19 33 43·04 | 16 28 36·7 | S. 36 24 | 7 S. 80 S. |
| 11 | $\beta^2$ Capricorni | 3.4 | 21 47 27 | 20 12 22·01 | S. 15 15 37·2 | N. 16 31 | 45 N. 21 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moo

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Lim Par |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | h m s | h m s | ° ′ ″ | ☾ ′ ″ | Lati ° |
| Sept. 12 | ν Aquarii - | 5 | 18 9 5 | 21 1 12·98 | S. 11 59 19·9 | N. 18 1 | 49 N. |
| 13 | ξ Aquarii - | 5 | 6 13 8 | 21 29 33·83 | 8 32 18·9 | S. 56 59 | 21 S. |
| 13 | $c^1$ Capricorni | 6 | 9 19 37 | 21 36 47·63 | 9 46 54·9 | N. 53 2 | 80 N. |
| 14 | κ Aquarii - | 6 | 8 28 55 | 22 29 47·97 | S. 5 1 2·3 | N. 43 30 | 84 N. |
| 15 | λ Piscium - | 5 | 13 22 31 | 23 34 12·85 | N. 0 56 10·9 | N. 43 0 | 90 N. |
| 16 | δ Piscium - | 5 | 19 46 27 | 0 40 42·97 | 6 44 53·4 | N. 51 35 | 90 N. |
| 19 | π Arietis - - | 5 | 3 4 35 | 2 40 43·47 | 16 49 14·2 | S. 43 10 | 8 S. |
| 21 | ε Tauri - - | 4 | 0 45 5 | 4 19 38·20 | N. 18 50 0·3 | N. 56 4 | 90 N. |
| 21 | ι Tauri - - | 4.5 | 16 41 12 | 4 53 53·99 | N. 21 21 50·0 | S. 67 11 | 51 S. |
| 22 | ζ Tauri - - | 3.4 | 8 52 35 | 5 28 26·72 | 21 2 32·9 | 44 24 | 12 S. |
| 22 | $\chi^1$ Orionis - | 5 | 16 49 6 | 5 45 16·20 | 20 14 30·2 | S. 3 52 | 32 N. |
| 22 | $\chi^2$ Orionis - | 6 | 17 4 59 | 5 45 49·74 | N. 19 42 48·0 | N. 27 29 | 71 N. |
| 22 | $\chi^5$ Orionis - | 5 | 21 19 27 | 5 54 46·48 | N. 20 8 8·2 | S. 4 25 | 31 N. |
| 23 | ν Geminor. | 5 | 9 16 3 | 6 19 48·95 | 20 18 11·7 | 41 51 | 9 S. |
| 26 | $\alpha^2$ Cancri - - | 5 | 11 23 17 | 8 50 2·65 | 12 27 4·2 | S. 1 42 | 34 N. |
| 26 | κ Cancri - - | 5.6 | 16 7 14 | 8 59 23·12 | N. 11 17 7·3 | N. 27 47 | 69 N. |
| 28 | η Sextantis | 6 | 17 51 50 | 10 37 11·81 | N. 3 17 58·0 | N. 16 54 | 54 N. |
| Oct. 3 | $\alpha^2$ Libræ - - | 3 | 13 23 5 | 14 42 21·10 | S. 15 23 44·7 | S. 43 40 | 14 S. |
| 3 | Venus - - | - | 20 25 18 | 14 58 52·99 | 17 56 11·6 | N. 59 0 | 72 N. |
| 4 | κ Libræ - - | 5 | 10 43 27 | 15 33 4·14 | S. 19 10 17·9 | N. 47 25 | 71 N. |
| 4 | λ Libræ - - | 5 | 15 23 41 | 15 44 23·28 | S. 19 41 56·8 | N. 55 56 | 70 N. |
| 4 | $\beta^1$ Scorpii - | 2 | 20 21 7 | 15 56 28·58 | 19 22 36·5 | 14 49 | 36 N. |
| 4 | $\omega^1$ Scorpii - | 4.5 | 20 53 27 | 15 57 47·68 | 20 14 38·5 | N. 64 39 | 70 N. |
| 4 | ν Scorpii - | 4 | 23 1 53 | 16 3 2·41 | S. 19 3 8·7 | S. 15 12 | 7 N. |
| 5 | ψ Ophiuchi | 5 | 3 55 44 | 16 15 5·14 | S. 19 40 6·6 | N. 4 46 | 24 N. |
| 6 | ρ Ophiuchi | 4.5 | 2 43 31 | 17 11 45·86 | 20 56 17·0 | 42 3 | 67 N. |
| 8 | d Sagittarii | 5 | 1 43 10 | 19 8 37·44 | 19 13 7·6 | 73 15 | 71 N. |
| 8 | $\rho^1$ Sagittarii | 5 | 3 24 11 | 19 12 44·47 | S. 18 7 43·7 | N. 17 46 | 42 N. |
| 8 | A.S.C. 2270 | 6 | 6 1 12 | 19 19 7·57 | S. 18 39 46·7 | N. 65 52 | 71 N. |
| 8 | $e^2$ Sagittarii | 5 | 12 1 35 | 19 33 42·59 | 16 28 37·3 | S. 25 34 | 3 N. |
| 9 | $\beta^2$ Capricorni | 3.4 | 4 9 56 | 20 12 21·59 | 15 15 37·9 | N. 26 38 | 56 N. |
| 10 | ν Aquarii - | 5 | 1 4 38 | 21 1 12·64 | S. 11 59 20·7 | N. 26 51 | 60 N. |
| 10 | ξ Aquarii - | 5 | 13 29 11 | 21 29 33·56 | S. 8 32 19·4 | S. 49 7 | 13 S. |
| 12 | λ Piscium - | 5 | 22 0 22 | 23 34 12·86 | N. 0 56 11·6 | N. 45 22 | 90 N. |
| 14 | δ Piscium - | 5 | 4 49 21 | 0 40 43·16 | 6 44 54·9 | N. 50 45 | 90 N. |
| 16 | π Arietis - - | 5 | 12 8 59 | 2 40 43·96 | N. 16 49 16·4 | S. 48 37 | 14 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | | | | ☾ | Latitude. |
| | | | h m s | h m s | ° ′ ″ | ′ ″ | ° ° |
| Oct. 18 | ε Tauri - - | 4 | 9 24 4 | 4 19 38·90 | N. 18 50 1·5 | N. 48 19 | 90 N. 30 N. |
| 19 | ζ Tauri - - | 3.4 | 17 13 17 | 5 28 27·52 | 21 2 33·0 | S. 53 1 | 23 S. 69 S. |
| 20 | $\chi^1$ Orionis - | 5 | 1 6 21 | 5 45 17·04 | 20 14 29·9 | 12 37 | 23 N. 31 S. |
| 20 | $\chi^5$ Orionis - | 5 | 5 34 59 | 5 54 47·32 | N. 20 8 7·7 | S. 13 13 | 22 N. 32 S. |
| 20 | $E^2$ Orionis - | 5.6 | 10 47 41 | 6 5 48·25 | N. 19 12 16·8 | N. 32 10 | 79 N. 13 N. |
| 20 | ν Geminor. | 5 | 17 28 3 | 6 19 49·78 | 20 18 10·8 | S. 50 45 | 20 S. 70 S. |
| 21 | λ Geminor. | 4.5 | 17 20 33 | 7 9 14·76 | 16 48 45·1 | N. 66 6 | 90 N. 55 N. |
| 22 | *k* Geminor. | 5 | 0 59 27 | 7 24 49·22 | N. 16 9 8·2 | N. 66 12 | 90 N. 54 N. |
| 23 | $A^2$ Cancri- - | 6 | 13 55 35 | 8 38 28·66 | N. 12 40 20·7 | N. 25 3 | 66 N. 6 S. |
| 23 | $\alpha^2$ Cancri- - | 5 | 19 49 46 | 8 50 3·38 | N. 12 27 1·2 | S. 9 40 | 26 N. 41 S. |
| Nov. 1 | ψ Ophiuchi | 5 | 11 1 58 | 16 15 4·92 | S. 19 40 5·7 | N. 8 13 | 27 N. 28 S. |
| 2 | ρ Ophiuchi | 4.5 | 9 13 52 | 17 11 45·53 | S. 20 56 16·2 | N. 46 15 | 69 N. 9 N. |
| 3 | $\mu^2$ Sagittarii | 6 | 6 25 52 | 18 6 1·15 | S. 20 45 55·2 | N. 63 3 | 69 N. 30 N. |
| 3 | 16 Sagittarii | 6 | 6 26 12 | 18 6 1·99 | 20 25 32·0 | 42 41 | 69 N. 5 N. |
| 4 | $\rho^1$ Sagittarii | 5 | 8 58 17 | 19 12 44·02 | 18 7 44·1 | N. 22 48 | 47 N. 15 S. |
| 4 | $e^2$ Sagittarii | 5 | 17 30 30 | 19 33 42·14 | S. 16 28 37·8 | S. 20 31 | 7 N. 58 S. |
| 5 | $\beta^2$ Capricorni | 3.4 | 9 33 48 | 20 12 21·13 | S. 15 15 38·8 | N. 31 39 | 62 N. 6 S. |
| 6 | ν Aquarii - | 5 | 6 31 17 | 21 1 12·21 | 11 59 21·9 | N. 31 39 | 66 N. 7 S. |
| 6 | ξ Aquarii - | 5 | 19 2 11 | 21 29 33·16 | S. 8 32 20·6 | S. 44 32 | 9 S. 90 S. |
| 9 | λ Piscium - | 5 | 4 33 50 | 23 34 12·66 | N. 0 56 10·8 | N. 48 16 | 90 N. 11 N. |
| 9 | 22 Piscium - | 6 | 9 14 6 | 23 44 5·69 | N. 2 4 37·6 | N. 33 54 | 76 N. 4 S. |
| 10 | δ Piscium - | 5 | 12 2 57 | 0 40 43·11 | 6 44 54·9 | N. 52 33 | 90 N. 18 N. |
| 12 | π Arietis - | 5 | 20 12 59 | 2 40 44·24 | 16 49 17·4 | S. 48 31 | 14 S. 73 S. |
| 14 | ε Tauri - - | 4 | 17 37 5 | 4 19 39·43 | N. 18 50 1·8 | N. 47 38 | 90 N. 29 N. |
| 16 | ζ Tauri - - | 3.4 | 1 19 57 | 5 28 28·23 | N. 21 2 32·6 | S. 53 56 | 25 S. 69 S. |
| 16 | $\chi^1$ Orionis - | 5 | 9 10 46 | 5 45 17·75 | 20 14 29·2 | S. 13 33 | 22 N. 32 S. |
| 16 | $\chi^2$ Orionis - | 6 | 9 26 28 | 5 45 51·29 | 19 42 46·9 | N. 17 48 | 57 N. 0 |
| 17 | ν Geminor. | 5 | 1 27 57 | 6 19 50·58 | N. 20 18 9·4 | S. 51 42 | 21 S. 70 S. |
| 18 | λ Geminor. | 4.5 | 1 15 56 | 7 9 15·60 | N. 16 48 42·6 | N. 65 13 | 90 N. 53 N. |
| 18 | *k* Geminor. | 5 | 8 54 20 | 7 24 50·04 | 16 9 5·4 | N. 65 22 | 90 N. 52 N. |
| 20 | $\alpha^2$ Cancri- - | 5 | 3 54 59 | 8 50 4·26 | 12 26 57·1 | S. 10 8 | 26 N. 42 S. |
| 21 | C Sextantis- | 6 | 15 37 36 | 9 58 43·88 | N. 6 21 37·4 | N. 31 9 | 74 N. 4 S. |
| 22 | *u* Leonis - | 6 | 17 10 44 | 10 47 46·99 | N. 1 33 25·1 | N. 58 28 | 90 N. 26 N. |
| 25 | α Virginis - | 1 | 18 33 2 | 13 17 4·79 | S. 10 21 14·9 | S. 10 56 | 22 N. 47 S. |
| 25 | *i* Virginis - | 5 | 19 14 19 | 13 18 35·19 | 11 54 6·9 | N. 75 2 | 78 N. 54 N. |
| Dec. 3 | ν Aquarii - | 5 | 12 43 11 | 21 1 11·85 | S. 11 59 23·1 | N. 28 14 | 61 N. 10 S. |

## ELEMENTS

for facilitating the Computation of Occultations of certain Stars by the Moon.

| Day of the Month. | Star's Name. | Magnitude. | Greenwich *Mean Time* of *Apparent* ♂ in R. A. of ☾ and ✱. | At Greenwich Mean Time of ♂ | | | Limiting Parallels. |
|---|---|---|---|---|---|---|---|
| | | | | *Apparent* R. A. of ☾ and ✱. | *Apparent* Declination of ✱. | Diff. of *Apparent* Dec. of ☾ and ✱. | |
| | | | | | | ☾ | Latitude. |
| | | | h m s | h m s | ° ′ ″ | ′ ″ | ° ° |
| Dec. 4 | ξ Aquarii - | 5 | 0 56 49 | 21 29 32·79 | S. 8 32 22·1 | S. 48 9 | 12 S. 90 S. |
| 4 | $c^1$ Capricorni | 6 | 4 6 50 | 21 36 46·60 | S. 9 46 58·4 | N. 61 29 | 80 N. 25 N. |
| 6 | λ Piscium - | 5 | 9 55 57 | 23 34 12·36 | N. 0 56 9·2 | 44 27 | 90 N. 7 N. |
| 7 | δ Piscium - | 5 | 17 38 16 | 0 40 42·90 | N. 6 44 53·6 | N. 49 12 | 90 N. 14 N. |
| 10 | π Arietis - | 5 | 2 38 19 | 2 40 44·28 | N. 16 49 17·4 | S. 50 5 | 16 S. 73 S. |
| 12 | ε Tauri - - | 4 | 0 36 34 | 4 19 39·73 | 18 50 1·5 | N. 48 7 | 90 N. 30 N. |
| 13 | ζ Tauri - - | 3.4 | 8 30 7 | 5 28 28·70 | 21 2 32·1 | S. 51 51 | 22 S. 69 S. |
| 13 | $\chi^1$ Orionis - | 5 | 16 21 51 | 5 45 18·27 | N. 20 14 28·4 | S. 11 3 | 24 N. 29 S. |
| 13 | $\chi^2$ Orionis - | 6 | 16 37 34 | 5 45 51·81 | N. 19 42 46·0 | N. 20 19 | 60 N. 3 N. |
| 13 | $\chi^3$ Orionis - | 5 | 20 49 27 | 5 54 48·59 | 20 8 5·9 | S. 11 25 | 24 N. 30 S. |
| 14 | ν Geminor. | 5 | 8 39 10 | 6 19 51·17 | 20 18 8·2 | S. 48 20 | 17 S. 70 S. |
| 17 | $\alpha^1$ Cancri - | 6 | 9 41 32 | 8 47 32·20 | N. 12 12 29·9 | N. 22 5 | 62 N. 9 S. |
| 17 | $\alpha^2$ Cancri - | 5 | 11 0 24 | 8 50 5·07 | N. 12 26 52·9 | S. 3 0 | 33 N. 34 S. |
| 17 | κ Cancri - | 5.6 | 15 50 26 | 8 59 25·53 | 11 16 55·7 | N. 26 54 | 68 N. 5 S. |
| 18 | π Leonis - | 4.5 | 19 25 49 | 9 52 5·67 | 8 46 42·4 | S. 71 43 | 57 S. 81 S. |
| 20 | υ Leonis - | 4.5 | 22 28 52 | 11 29 4·71 | N. 0 1 30·1 | S. 67 24 | 41 S. 90 S. |
| 22 | g Virginis - | 5.6 | 19 57 27 | 12 59 50·57 | S. 9 54 52·4 | N. 52 21 | 80 N. 17 N. |
| 23 | α Virginis - | 1 | 4 9 13 | 13 17 5·61 | 10 21 19·5 | S. 2 48 | 30 N. 39 S. |
| 24 | $\alpha^2$ Libræ - - | 3 | 18 18 6 | 14 42 22·12 | 15 23 48·5 | S. 35 58 | 6 S. 80 S. |
| 24 | A. S. C. 1682 | 6 | 18 33 29 | 14 42 58·33 | S. 17 8 31·8 | N. 66 50 | 73 N. 36 N. |
| 25 | κ Libræ - - | 5 | 15 15 57 | 15 33 4·83 | S. 19 10 19·0 | N. 54 8 | 71 N. 18 N. |
| 25 | λ Libræ - - | 5 | 19 47 55 | 15 44 23·89 | 19 41 57·5 | 62 23 | 70 N. 29 N. |
| 26 | $\beta^1$ Scorpii - | 2 | 0 35 19 | 15 56 29·13 | 19 22 37·2 | 20 57 | 42 N. 16 S. |
| 26 | $\omega^1$ Scorpii - | 4.5 | 1 6 29 | 15 57 48·22 | S. 20 14 38·7 | N. 70 45 | 70 N. 43 N. |
| 26 | ν Scorpii - | 4 | 3 10 8 | 16 3 2·91 | S. 19 3 9·4 | S. 9 14 | 12 N. 45 S. |
| 26 | ψ Ophiuchi | 5 | 7 52 10 | 16 15 5·56 | 19 40 7·0 | N. 10 22 | 30 N. 26 S. |
| 30 | ν Aquarii - | 5 | 21 31 44 | 21 1 11·68 | 11 59 24·2 | N. 19 38 | 51 N. 18 S. |
| 31 | ξ Aquarii - | 5 | 9 17 3 | 21 29 32·58 | S. 8 32 23·6 | S. 57 45 | 21 S. 90 S. |

# ECLIPSES OF THE SUN AND MOON,

AND

# TRANSIT OF MERCURY.

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In the Year 1845 there will be two Eclipses of the Sun, two of the Moon, and a Transit of Mercury.

I.—*An Annular Eclipse of the SUN, May* 5–6, 1845, *visible at Greenwich.*

Begins on the Earth generally May $5^d$ $19^h$ $49^m{\cdot}2$, Mean Time at Greenwich, in Longitude 36° 55′ W. of Greenwich, and Latitude 27° 13′ N.

Central Eclipse begins generally May $5^d$ $21^h$ $57^m{\cdot}6$, in Longitude 103° 39′ W. of Greenwich, and Latitude 66° 43′ N.

Central Eclipse ends generally May $5^d$ $22^h$ $20^m{\cdot}2$, in Longitude 136° 58′ W. of Greenwich, and Latitude 72° 39′ N.

Ends on the Earth generally May $6^d$ $0^h$ $28^m{\cdot}7$, in Longitude 101° 9′ E. of Greenwich, and Latitude 48° 6′ N.

The Central line passes over the points on the Earth's surface, whose positions are,

| | ° | ′ | | | ° | ′ |
|---|---|---|---|---|---|---|
| Longitude | 103 | 39 | W. of Greenwich. | Latitude | 66 | 43 N. |
| | 100 | 10 | | | 69 | 1 |
| | 101 | 52 | | | 72 | 56 |
| | 114 | 30 | | | 75 | 37 |
| | 131 | 10 | | | 74 | 53 |
| | 136 | 58 | | | 72 | 39 N. |

The Southern limit of this Eclipse, or the line traversed by the Southern edge of the Penumbra, passes over the points on the Earth's surface, whose positions are,

| | ° | ′ | | | ° | ′ |
|---|---|---|---|---|---|---|
| Longitude | 41 | 6 W. | of Greenwich. | Latitude | 13 | 44 N. |
| | 30 | 35 | | | 17 | 29 |
| | 22 | 38 | | | 20 | 54 |
| | 11 | 24 W. | | | 26 | 37 |
| | 0 | 10 E. | | | 33 | 6 |
| | 13 | 6 | | | 39 | 28 |
| | 28 | 11 | | | 44 | 9 |
| | 45 | 40 | | | 45 | 58 |
| | 63 | 15 | | | 44 | 46 |
| | 79 | 27 | | | 41 | 39 |
| | 89 | 55 | | | 38 | 55 |
| | 102 | 41 E. | | | 35 | 5 N. |

PATH OF THE MOON'S PENUMBRA OVER THE SURFACE OF THE EART
DURING THE ANNULAR ECLIPSE OF THE SUN, MAY 5–6, 1845.


At GREENWICH, a Partial Eclipse is visible, and

| | | |
|---|---|---|
| Begins - - - - - - - - - | May $5^d$ $20^h$ $31^m \cdot 3$ | Mean Time at Greenwich |
| Greatest Phase - - - - - | ——— 21 36 ·8 | |
| Ends - - - - - - - - - - | ——— 22 47 ·1 | |

Magnitude of the Eclipse (Sun's diameter = 1) 0·386 on the Northern lin

Angle from North Pole of { first contact 72°, towards the West.
last contact 34°, towards the East.

Angle from Vertex of { first contact 34°, towards the West.
last contact 53°, towards the East.

For any place, not far distant from Greenwich, whose North latitude is $l$, East longitude $\lambda$, the Mean Greenwich time $t$ of beginning may be compute the formulæ,

$$\cos \omega = 1 \cdot 94136 - [0 \cdot 20737] \sin l + [9 \cdot 88194] \cos l \cos (\lambda - 99^\circ\ 59'$$

$$t = 22^h\ 10^m\ 15^s - [3 \cdot 67299] \sin \omega + [3 \cdot 41033] \sin l - [3 \cdot 90240] \cos l \cos (\lambda + 33^\circ$$

Contact on ⊙'s limb, $\omega + 18^\circ\ 43' \cdot 1$ from the North towards the West.

Also the Mean Greenwich time $t$ of ending, by the formulæ,

$$\cos\omega = 1\cdot68185 - [0\cdot21011]\sin l + [9\cdot87265]\cos l\cos(\lambda - 64^\circ\,39'\cdot0)$$
$$t = 21^h\,37^m\,46^s + [3\cdot73439]\sin\omega + [3\cdot44764]\sin l - [3\cdot96701]\cos l\cos(\lambda + 66^\circ\,33'\cdot6)$$

Contact on ⊙'s limb, $\omega - 17^\circ\,40'\cdot1$ from the North towards the East.

At Edinburgh, a Partial Eclipse is visible, and

| | | | | | |
|---|---|---|---|---|---|
| Begins - - - - - - - - - | May $5^d$ | $20^h$ | $20^m\cdot6$ | | Mean Time at Edinburgh. |
| Greatest Phase - - - - - | ——— | 21 | 29 ·2 | | |
| Ends - - - - - - - - - - | ——— | 22 | 42 ·6 | | |

Magnitude of the Eclipse (Sun's diameter = 1) 0 ·487 on the Northern limb.

Angle from North Pole of { first contact 78°, towards the West. / last contact 42°, towards the East.

Angle from Vertex of { first contact 45°, towards the West. / last contact 59°, towards the East.

For any place, not far distant from Edinburgh, the Mean Greenwich time $t$ of beginning may be computed by the formulæ,

$$\cos\omega = 1\cdot91739 - [0\cdot20945]\sin l + [9\cdot87082]\cos l\cos(\lambda - 97^\circ\,55'\cdot9)$$
$$t = 22^h\,9^m\,10^s - [3\cdot65897]\sin\omega + [3\cdot37450]\sin l - [3\cdot89025]\cos l\cos(\lambda + 33^\circ\,55'\cdot9)$$

Contact on ⊙'s limb, $\omega + 17^\circ\,46'\cdot8$ from the North towards the West.

Also the Mean Greenwich time $t$ of ending, by the formulæ,

$$\cos\omega = 1\cdot68019 - [0\cdot21186]\sin l + [9\cdot86255]\cos l\cos(\lambda - 60^\circ\,54'\cdot3)$$
$$t = 21^h\,39^m\,38^s + [3\cdot71754]\sin\omega + [3\cdot40914]\sin l - [3\cdot95176]\cos l\cos(\lambda + 69^\circ\,1'\cdot0)$$

Contact on ⊙'s limb, $\omega - 16^\circ\,47'\cdot7$ from the North towards the East.

At Dublin, a Partial Eclipse is visible, and

| | | | | | |
|---|---|---|---|---|---|
| Begins - - - - - - - - - | May $5^d$ | $20^h$ | $1^m\cdot4$ | | Mean Time at Dublin. |
| Greatest Phase - - - - - | ——— | 21 | 8 ·2 | | |
| Ends - - - - - - - - - - | ——— | 22 | 20 ·5 | | |

Magnitude of the Eclipse (Sun's diameter = 1) 0 ·469 on the Northern limb.

Angle from North Pole of { first contact 77°, towards the West. / last contact 40°, towards the East.

Angle from Vertex of { first contact 40°, towards the West. / last contact 63°, towards the East.

For any place, not far distant from Dublin, the Mean Greenwich time $t$ of beginning may be computed by the formulæ,

$$\cos\omega = 1\cdot93727 - [0\cdot20864]\sin l + [9\cdot87448]\cos l\cos(\lambda - 100^\circ\,12'\cdot4)$$
$$t = 22^h\,8^m\,1^s - [3\cdot65309]\sin\omega + [3\cdot37616]\sin l - [3\cdot88360]\cos l\cos(\lambda + 32^\circ\,8'\cdot3)$$

Contact on ⊙'s limb, $\omega + 18^\circ\,6'\cdot2$ from the North towards the West.

Also the Mean Greenwich time $t$ of ending, by the formulæ,

$$\cos\omega = 1\cdot68308 - [0\cdot21002]\sin l + [9\cdot87215]\cos l\cos(\lambda - 64^\circ\,35'\cdot8)$$
$$t = 21^h\,40^m\,5^s + [3\cdot71969]\sin\omega + [3\cdot43189]\sin l - [3\cdot95221]\cos l\cos(\lambda + 66^\circ\,34'\cdot3)$$

Contact on ⊙'s limb, $\omega - 17^\circ\,37'\cdot9$ from the North towards the East.

II.—*A Transit of Mercury, May* 8, 1845, *partly visible at Greenwich.*

With reference to the centre of the Earth,

| | h | m | s | |
|---|---|---|---|---|
| First contact of limbs - - - - - - - | 4 | 19 | 5·2 | Mean Time at Green |
| Least distance of centres 9′ 11″·7 - | 7 | 35 | 1·2 | |
| Last contact of limbs - - - - - - - | 10 | 50 | 47·8 | |

Angle from North Pole of { first contact 82°, towards the West. last contact 28°, towards the East.

At Ingress and Egress the Sun will be in the Zenith of the places whose pos are,

| | ° | ′ | | | ° | ′ |
|---|---|---|---|---|---|---|
| Longitude | 65 | 41 | W. of Greenwich. | Latitude | 17 | 17 N. |
| | 163 | 38 | | | 17 | 21 N. |

The Ingress will be visible in Great Britain and Ireland, Norway, Sweden, R Germany, France, Italy, Portugal, Spain, North-Western part of Africa, and and South America. The Egress in North America, North-Eastern extrem South America, Australia, the Chinese Empire, Kamtschatka, and Siberia.

With reference to the surface of the Earth,

The Mean Greenwich times of Ingress and Egress, at any place whose latitude is $l$, and East longitude $\lambda$, may be computed by the formulæ,

Ingress = May $8^d\ 4^h\ 19^m\ 5^s + [1{\cdot}2576]\,\rho \sin l - [2{\cdot}1005]\,\rho \cos l \cos(\lambda - 21^\circ$

Egress = ——— 10 50 48 $- [2{\cdot}0321]\,\rho \sin l + [1{\cdot}8381]\,\rho \cos l \cos(\lambda - 135^\circ$

$\rho$ being the radius of the Earth at the place.

III.—*A Total Eclipse of the MOON, May* 21, 1845, *invisible at Greenwich.*

| | h | m | |
|---|---|---|---|
| First contact with the Penumbra at - | 1 | 19·5 | Mean Time at Greenwich. |
| First contact with the Shadow - - - - | 2 | 17·1 | |
| First total immersion in the Shadow - | 3 | 31·3 | |
| Middle of the Eclipse - - - - - - - - | 3 | 53·9 | |
| Last total immersion in the Shadow - | 4 | 16·5 | |
| Last contact with the Shadow - - - - | 5 | 30·7 | |
| Last contact with the Penumbra - - - | 6 | 28·3 | |

At these times respectively the Moon will be in the Zenith of the places positions are,

| | ° | ′ | | | ° | ′ |
|---|---|---|---|---|---|---|
| Longitude | 157 | 40 | E. of Greenwich. | Latitude | 19 | 44 S. |
| | 143 | 51 | | | 19 | 49 |
| | 126 | 4 | | | 19 | 55 |
| | 120 | 39 | | | 19 | 56 |
| | 115 | 14 | | | 19 | 58 |
| | 97 | 27 | | | 20 | 3 |
| | 83 | 39 | | | 20 | 7 S. |

Magnitude of the Eclipse (Moon's diameter=1) 1·095, on the Southern limb.
The first contact with the Shadow occurs at 121°, from the Northernmost point of the Moon's limb towards the East.
The last contact at 108°, towards the West.

IV.—*An Annular Eclipse of the SUN, Oct. 30, 1845, invisible at Greenwich.*

Begins on the Earth generally Oct. $30^d$ $9^h$ $31^m{\cdot}6$, Mean Time at Greenwich, in Longitude 117° 59′ E. of Greenwich, and Latitude 19° 37′ S.
Central Eclipse begins generally Oct. $30^d$ $10^h$ $55^m{\cdot}1$, in Longitude 88° 22′ E. of Greenwich, and Latitude 43° 54′ S.
Central Eclipse at Noon Oct. $30^d$ $12^h$ $12^m{\cdot}9$, in Longitude 172° 42′ E. of Greenwich, and Latitude 75° 39′ S.
Central Eclipse ends generally Oct. $30^d$ $12^h$ $46^m{\cdot}9$, in Longitude 68° 48′ W. of Greenwich, and Latitude 67° 37′ S.
Ends on the Earth generally Oct. $30^d$ $14^h$ $10^m{\cdot}4$, in Longitude 112° 10′ W. of Greenwich, and Latitude 45° 17′ S.
The Central line passes over the points on the Earth's surface, whose positions are,

| | ° | ′ | | | ° | ′ |
|---|---|---|---|---|---|---|
| Longitude | 88 | 22 E. | of Greenwich. | Latitude | 43 | 54 S. |
| | 100 | 13 | | | 47 | 39 |
| | 108 | 39 | | | 51 | 13 |
| | 119 | 48 | | | 56 | 55 |
| | 134 | 28 | | | 64 | 37 |
| | 158 | 53 | | | 73 | 8 |
| | 172 | 42 E. | | | 75 | 39 |
| | 159 | 12 W. | | | 77 | 57 |
| | 115 | 8 | | | 76 | 46 |
| | 91 | 6 | | | 73 | 21 |
| | 68 | 48 W. | | | 67 | 37 S. |

The Northern limit of this Eclipse, or the line traversed by the Northern edge of the Penumbra, passes over the points on the Earth's surface, whose positions are,

| | ° | ′ | | | ° | ′ |
|---|---|---|---|---|---|---|
| Longitude | 112 | 51 E. | of Greenwich. | Latitude | 4 | 13 S. |
| | 124 | 23 | | | 7 | 47 |
| | 131 | 23 | | | 10 | 27 |
| | 142 | 47 | | | 15 | 47 |
| | 154 | 12 E. | | | 22 | 6 |
| | 163 | 28 W. | | | 37 | 14 |
| | 147 | 18 | | | 37 | 14 |
| | 131 | 47 | | | 35 | 16 |
| | 122 | 54 | | | 33 | 31 |
| | 109 | 12 W. | | | 30 | 14 S. |

PATH OF THE MOON'S PENUMBRA OVER THE SURFACE OF THE EARTH DURING THE ANNULAR ECLIPSE OF THE SUN, OCTOBER 30, 1845.


## V.—*A Partial Eclipse of the MOON, Nov.* 13, 1845, *visible at Greenwich.*

| | h | m | |
|---|---|---|---|
| First contact with the Penumbra at - | 9 | 57·4 | Mean Time at Greenwich. |
| First contact with the Shadow - - - - | 11 | 10·2 | |
| Middle of the Eclipse - - - - - - - - | 12 | 49·3 | |
| Last contact with the Shadow - - - - | 14 | 28·4 | |
| Last contact with the Penumbra - - - | 15 | 41·2 | |

At these times respectively the Moon will be in the Zenith of the places whose positions are,

| Longitude | ° | ′ | | Latitude | ° | ′ |
|---|---|---|---|---|---|---|
| | 25 | 26 E. | of Greenwich. | | 17 | 33 N. |
| | 7 | 50 E. | | | 17 | 40 |
| | 16 | 6 W. | | | 17 | 49 |
| | 40 | 3 | | | 17 | 58 |
| | 57 | 38 W. | | | 18 | 4 N. |

Magnitude of the Eclipse (Moon's diameter = 1) 0·919, on the Northern limb.

The first contact with the Shadow occurs at 51°, from the Northernmost point of the Moon's limb towards the East.

The last contact at 70°, towards the West.

## ELEMENTS OF THE ECLIPSES OF THE SUN.

| 1845. | May 5-6. | October 30. |
|---|---|---|
| | d h m s | h m s |
| Greenwich Mean Time of ♂ in R. A. | 5 22 31 45·8 | 12 12 56·7 |
| ☉ and ☽'s Right Ascension | 2 52 59·94 | 14 20 24·55 |
| | ° ′ ″ | ° ′ ″ |
| ☽'s Declination | N. 17 29 1·9 | S. 14 52 4·9 |
| ☉'s Declination | N. 16 33 31·5 | S. 14 0 38·8 |
| ☽'s Horary Motion in R. A. | 31 32·9 | 35 10·8 |
| ☉'s Horary Motion in R. A. | 2 24·9 | 2 26·4 |
| ☽'s Horary Motion in Declination | N. 6 12·2 | S. 8 20·7 |
| ☉'s Horary Motion in Declination | N. 0 42·1 | S. 0 48·9 |
| ☽'s Equatorial Horizontal Parallax | 54 56·5 | 58 44·2 |
| ☉'s Equatorial Horizontal Parallax | 8·5 | 8·6 |
| ☽'s True Semidiameter | 14 58·3 | 16 0·4 |
| ☉'s True Semidiameter | 15 51·8 | 16 8·5 |

## ELEMENTS OF THE ECLIPSES OF THE MOON.

| 1845. | May 21. | November 13. |
|---|---|---|
| | h m s | h m s |
| Greenwich Mean Time of ♂ in R. A. | 3 48 53·1 | 12 39 56·0 |
| ☽'s Right Ascension | 15 52 52·82 | 3 16 27·90 |
| | ° ′ ″ | ° ′ ″ |
| ☽'s Declination | S. 19 48 40·9 | N. 17 41 55·9 |
| ☉'s Declination | N. 20 14 53·3 | S. 18 9 47·1 |
| ☽'s Horary Motion in R. A. | 39 33·3 | 32 40·4 |
| ☉'s Horary Motion in R. A. | 2 30·2 | 2 33·6 |
| ☽'s Horary Motion in Declination | S. 4 27·3 | N. 5 23·9 |
| ☉'s Horary Motion in Declination | N. 0 30·2 | S. 0 39·4 |
| ☽'s Equatorial Horizontal Parallax | 60 46·2 | 55 39·8 |
| ☉'s Equatorial Horizontal Parallax | 8·5 | 8·7 |
| ☽'s True Semidiameter | 16 33·6 | 15 10·1 |
| ☉'s True Semidiameter | 15 48·9 | 16 11·8 |

## ELEMENTS OF THE TRANSIT OF MERCURY.

| 1845. | May 8. |
|---|---|
| | h m s |
| Greenwich Mean Time of ♂ in R. A. | 8 44 25·1 |
| ☉ and ☿'s Right Ascension | 3 2 23·85 |
| | ° ′ ″ |
| ☿'s Declination | N. 17 3 13·6 |
| ☉'s Declination | N. 17 13 31·0 |
| ☿'s Horary Motion in R. A. | W. 1 18·5 |
| ☉'s Horary Motion in R. A. | E. 2 25·7 |
| ☿'s Horary Motion in Declination | S. 1 7·2 |
| ☉'s Horary Motion in Declination | N. 0 40·4 |
| ☿'s Equatorial Horizontal Parallax | 15·43 |
| ☉'s Equatorial Horizontal Parallax | 8·50 |
| ☿'s True Semidiameter | 5·8 |
| ☉'s True Semidiameter | 15 51·3 |

## MEAN TIME.

### JANUARY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 10 | 16 | ☿ in ♑ | | |
| 2 | 16 | 2 | ☿ Stationary. | | |
| 3 | 22 | 30 | ♂ ☌ ☾ - - - ♂ | 2 | 3 N. |
| 5 | 13 | 2 | ♀ ☌ ☾ - - - ♀ | 0 | 28 N. |
| 5 | 15 | 45 | ♃ ☌ *q* Piscium ✱ | 1 | 51 S. |
| 5 | 16 | 52 | ☾ ☌ ☉ | | |
| 5 | 23 | 53 | ☿ in Perihelion. | | |
| 7 | 0 | 0 | ♃ greatest Hel. Lat. S. | | |
| 8 | 9 | 41 | ☿ ☌ ☾ - - - ☿ | 2 | 1 S. |
| 9 | 4 | 43 | ♄ ☌ ☾ - - - ♄ | 5 | 30 S. |
| 9 | 12 | 19 | ♀ ☌ *ρ* Ophiuchi ✱ | 0 | 52 N. |
| 11 | 10 | 45 | ♀ ☌ $e^2$ Ophiuchi ✱ | 1 | 46 S. |
| 12 | 0 | 38 | ☿ in Inf. ☌ ☉ | | |
| 12 | 19 | 52 | ♂ ☌ *κ* Libræ ✱ | 0 | 39 S. |
| 12 | 23 | 46 | ♃ ☌ ☾ - - - ♃ | 6 | 18 S. |
| 13 | 6 | 27 | ♅ ☌ ☾ - - - ♅ | 5 | 33 S. |
| 13 | 17 | 38 | ♀ ☌ D Ophiuchi ✱ | 0 | 44 N. |
| 13 | 17 | 46 | ☿ ☌ ♀ - - - ☿ | 6 | 58 N. |
| 16 | 7 | 15 | ☿ greatest Hel. Lat. N. | | |
| 16 | 18 | 8 | ♀ ☌ 4 Sagitt. ✱ | 1 | 13 S. |
| 17 | 3 | 30 | ♂ ☌ *λ* Libræ ✱ | 0 | 30 S. |
| 19 | 9 | 22 | ♀ ☌ $\mu^1$ Sagitt. ✱ | 1 | 38 N. |
| 21 | 17 | 32 | ♂ ☌ $\beta^1$ Scorpii ✱ | 0 | 29 N. |
| 22 | 5 | 26 | ♂ ☌ $\omega^1$ Scorpii ✱ | 0 | 19 S. |
| 22 | 10 | 33 | ♂ ☌ $\omega^2$ Scorpii ✱ | 0 | 29 S. |
| 22 | 12 | 38 | ☿ ☌ ♝ - - - ☿ | 23 | 31 S. |
| 23 | 6 | 33 | ☿ Stationary. | | |
| 24 | 4 | 48 | ♂ ☌ *ν* Scorpii ✱ | 1 | 9 N. |
| 28 | 17 | 0 | ♂ ☌ *ψ* Ophiuchi ✱ | 1 | 7 N. |
| 29 | 4 | 25 | ♄ ☌ ☉ | | |
| 29 | 11 | 13 | ☿ ☌ ♝ - - - ☿ | 24 | 50 S. |
| 31 | 7 | 2 | ♀ ☌ ♝ - - - ♝ | 26 | 28 N. |
| 31 | 15 | 48 | ♂ ☌ *ω* Ophiuchi ✱ | 0 | 1 N. |

### FEBRUARY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 6 | 10 | ♒ ☌ $\psi^2$ Aquarii ✱ | 0 | 57 N. |
| 1 | 11 | 42 | ♂ ☌ ☾ - - - ♂ | 0 | 5 S. |
| 1 | 19 | 52 | ♒ ☌ $\psi^2$ Aquarii ✱ | 0 | 25 N. |
| 2 | 4 | 9 | ☿ ☌ ♀ - - - ☿ | 1 | 2 N. |

### FEBRUARY.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 3 | 12 | 0 | ♃ in Perihelion. | | |
| 4 | 2 | 0 | ♀ in ♉ | | |
| 4 | 10 | 19 | ☿ ☌ ☾ - - - ☿ | 3 | 7 S. |
| 4 | 11 | 30 | ♀ ☌ ☾ - - - ♀ | 3 | 55 S. |
| 4 | 16 | 46 | ☿ greatest elong. | 25 | 38 W. |
| 5 | 21 | 6 | ♄ ☌ ☾ - - - ♄ | 5 | 38 S. |
| 6 | 20 | 16 | ♃ ☌ ♅ - - - ♅ | 0 | 31 N. |
| 8 | 19 | 48 | ☿ in ♉ | | |
| 9 | 17 | 34 | ♅ ☌ ☾ - - - ♅ | 5 | 15 S. |
| 9 | 18 | 25 | ♃ ☌ ☾ - - - ♃ | 5 | 44 S. |
| 11 | 22 | 8 | ☥ ☌ ☉ intens. of light | 1·416 | |
| 13 | 5 | 30 | ♀ ☌ ♑ - - - ♑ | 4 | 7 S. |
| 14 | 12 | 19 | ☿ ☌ ♑ - - - ☿ | 3 | 46 N. |
| 18 | 15 | 13 | ♂ ☌ *ρ* Ophiuchi ✱ | 1 | 51 N. |
| 18 | 23 | 26 | ☿ in Aphelion. | | |
| 20 | 18 | 23 | ☿ ☌ ♀ - - - ☿ | 0 | 48 S. |
| 21 | 13 | 51 | ☿ ☌ ♄ - - - ☿ | 0 | 53 S. |
| 21 | 17 | 59 | ♀ ☌ ♄ - - - ♀ | 0 | 2 S. |
| 22 | 9 | 22 | ♂ ☌ $e^2$ Ophiuchi ✱ | 0 | 49 S. |
| 26 | 20 | 22 | ♂ ☌ D Ophiuchi ✱ | 1 | 39 N. |

### MARCH.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 2 | 0 | 9 | ♂ ☌ ☾ - - - ♂ | 2 | 16 S. |
| 3 | 4 | 56 | ♂ in ♉ | | |
| 4 | 18 | 17 | ♂ ☌ 4 Sagitt. ✱ | 0 | 20 S. |
| 5 | 11 | 33 | ♄ ☌ ☾ - - - ♄ | 5 | 53 S. |
| 6 | 13 | 22 | ♀ ☌ ☾ - - - ♀ | 6 | 35 S. |
| 6 | 23 | 0 | ☿ ☌ ☾ - - - ☿ | 7 | 42 S. |
| 8 | 11 | 6 | ♄ ☌ *s* Capricor. ✱ | 1 | 30 N. |
| 9 | 5 | 36 | ♅ ☌ ☾ - - - ♅ | 5 | 1 S. |
| 9 | 14 | 53 | ♃ ☌ ☾ - - - ♃ | 5 | 8 S. |
| 10 | 8 | 53 | ♀ in Aphelion. | | |
| 11 | 10 | 38 | ☿ greatest Hel. Lat. S. | | |
| 14 | 19 | 12 | ♑ ☌ ♅ - - - ♑ | 4 | 46 S. |
| 15 | 1 | 46 | ♂ ☌ *λ* Sagitt. ✱ | 1 | 53 S. |
| 20 | 4 | 48 | ♑ ☌ ♄ - - - ♑ | 5 | 3 S. |
| 20 | 5 | 45 | ☉ enters ♈. Spring comm$^{t}$. | | |
| 22 | 7 | 33 | ☿ in Sup. ☌ ☉ | | |
| 24 | 4 | 58 | ♑ ☌ *ζ* Capricor. ✱ | 1 | 20 S. |

## MEAN TIME.

### MARCH.

| m | | ° ′ |
|---|---|---|
| [illegible] | ☿ ☌ ♅ - - - ☿ | 0 22 S. |
| [illegible] | ♄ ☌ ι Capricor. ✱ | 0 37 S. |
| [illegible] | ♂ ☌ ν¹ Sagitt. ✱ | 0 34 N. |
| [illegible] | ♂ ☌ ν² Sagitt. ✱ | 0 38 N. |
| [illegible] | ♃ Stationary. | |
| [illegible] | ♅ ☌ ☉ | |
| [illegible] | ☿ ☌ ♋ - - - ☿ | 4 51 N. |
| [illegible] | ☿ ☌ ♃ - - - ☿ | 0 52 N. |
| [illegible] | ♂ ☌ ο Sagitt. ✱ | 1 25 N. |
| [illegible] | ☿ in ♌ | |
| [illegible] | ♂ ☌ ☾ - - - ♂ | 4 24 S. |
| [illegible] | ♀ ☌ ε Capricor. ✱ | 1 7 N. |

### APRIL.

| m | | ° ′ |
|---|---|---|
| 2 | ♋ ☌ ☉ | |
| 3 | ♀ greatest Hel. Lat. S. | |
| 5 | ♄ ☌ ☾ - - - ♄ | 6 10 S. |
| [illegible] | ☿ in Perihelion. | |
| 3 | ♀ ☌ κ Capricor. ✱ | 1 27 N. |
| 5 | ♀ ☌ ☾ - - - ♀ | 5 47 S. |
| 1 | ♅ ☌ ☾ - - - ♅ | 4 53 S. |
| 3 | ♀ ☌ ♅ - - - ♅ | 0 50 N. |
| 5 | ♃ ☌ ☉ | |
| 1 | ♃ ☌ ☾ - - - ♃ | 4 34 S. |
| [illegible] | ♋ greatest Hel. Lat. S. | |
| [illegible] | ☿ ☌ ☾ - - - ☿ | 0 22 S. |
| 2 | ♂ □ ☉ | |
| [illegible] | ♋ ☌ ♃ - - - ♋ | 4 20 S. |
| 3 | ☿ greatest Hel. Lat. N. | |
| 5 | ♀ ☌ ♃ - - - ♀ | 0 16 S. |
| [illegible] | ☿ greatest elong. | 19 49 E. |
| 3 | ♀ ☌ ♋ - - - ♋ | 4 6 S. |
| 5 | ☿ Stationary. | |
| 4 | ♂ ☌ ☾ - - - ♂ | 6 23 S. |
| 9 | ♃ ☌ ξ Leonis. ✱ | 0 31 S. |
| [illegible] | ♄ ☌ ☾ - - - ♄ | 6 25 S. |

### MAY.

| d | h | m | | ° ′ |
|---|---|---|---|---|
| 3 | 1 | 56 | ♅ ☌ ☾ - - - ♅ | 4 50 S. |
| 4 | 6 | 9 | ♃ ☌ ☾ - - - ♃ | 4 3 S. |
| 5 | 17 | 35 | ♀ ☌ ☾ - - - ♀ | 2 3 S. |
| 5 | - | - | ☉ eclipsed, vis. at Greenwich. | |
| 6 | 5 | 5 | ☿ ☌ ☾ - - - ☿ | 0 8 S. |
| 6 | 12 | 15 | ♃ □ ☉ | |
| 7 | 19 | 5 | ☿ in ♉ | |
| 8 | - | - | ☿ tran. ☉, part vis. at Green$^{h}$. | |
| 8 | 7 | 53 | ☿ in Inf. ☌ ☉ | |
| 8 | 22 | 51 | ♄ □ ☉ | |
| 9 | 9 | 2 | ☿ ☌ ♀ - - - ☿ | 0 16 N. |
| 9 | 10 | 48 | ♂ ☌ ♃ - - - ♃ | 34 49 N. |
| 10 | 1 | 56 | ♃ ☌ ο Leonis ✱ | 1 56 S. |
| 12 | 9 | 49 | ♃ □ ☉ | |
| 15 | 18 | 20 | ♀ in Sup. ☌ ☉ | |
| 17 | 0 | 45 | ♂ ☌ η Capricor. ✱ | 0 51 S. |
| 17 | 22 | 41 | ☿ in Aphelion. | |
| 20 | 13 | 55 | ☿ Stationary. | |
| 21 | - | - | ☾ eclipsed, invis. at Green$^{h}$. | |
| 22 | 6 | 39 | ♀ □ ☉ | |
| 25 | 17 | 49 | ♂ ☌ ι Capricor. ✱ | 1 16 N. |
| 26 | 9 | 52 | ♂ ☌ ☾ - - - ♂ | 8 13 S. |
| 26 | 15 | 6 | ♄ ☌ ☾ - - - ♄ | 6 31 S. |
| 27 | 0 | 0 | ♃ Stationary. | |
| 28 | 5 | 23 | ♀ in ♌ | |
| 29 | 15 | 5 | ♄ Stationary. | |
| 30 | 9 | 36 | ♅ ☌ ☾ - - - ♅ | 4 46 S. |
| 31 | 23 | 22 | ♃ ☌ ☾ - - - ♃ | 3 33 S. |

### JUNE.

| d | h | m | | ° ′ |
|---|---|---|---|---|
| 1 | 13 | 26 | ♂ ☌ ♄ - - - ♂ | 2 4 S. |
| 2 | 12 | 1 | ☿ ☌ ☾ - - - ☿ | 4 23 S. |
| 2 | 14 | 33 | ♋ ☌ μ Ceti ✱ | 0 20 S. |
| 4 | 3 | 25 | ☿ greatest elong. | 23 49 W. |
| 4 | 4 | 16 | ♂ ☌ γ Capricor. ✱ | 0 32 N. |
| 4 | 14 | 38 | ♃ ☌ λ Leonis ✱ | 0 57 S. |
| 4 | 22 | 56 | ♃ ☌ α Leonis ✱ | 1 3 N. |
| 5 | 0 | 45 | ♀ ☌ ☾ - - - ♀ | 2 29 N. |
| 5 | 14 | 10 | ♂ ☌ κ Capricor. ✱ | 1 48 S. |

## MEAN TIME.

### JUNE.

| d | h | m | | | ° | ′ |
|---|---|---|---|---|---|---|
| 7 | 9 | 51 | ☿ greatest Hel. Lat. S. | | | |
| 8 | 4 | 30 | ♂ ☌ δ Capricor. | ✱ | 0 | 44 N. |
| 16 | 18 | 58 | ☿ ☌ ε Tauri | ✱ | 0 | 45 S. |
| 17 | 14 | 25 | ♃ in ♌ | | | |
| 21 | 2 | 43 | ☉ enters ♋. Summer comm$^{t}$. | | | |
| 22 | 22 | 24 | ♄ ☌ ☾ - - - | ♄ | 6 | 30 S. |
| 23 | 14 | 19 | ♂ ☌ ☾ - - - | ♂ | 9 | 59 S. |
| 25 | 3 | 17 | ♃ ☌ ρ Leonis | ✱ | 0 | 9 S. |
| 26 | 8 | 49 | ☿ in ♌ | | | |
| 26 | 16 | 41 | ♅ ☌ ☾ - - - | ♅ | 4 | 38 S. |
| 28 | 14 | 50 | ♃ ☌ ☾ - - - | ♃ | 3 | 2 S. |
| 30 | 18 | 0 | ♀ in Perihelion. | | | |
| 30 | 22 | 22 | ☿ in Perihelion. | | | |

### JULY.

| d | h | m | | | ° | ′ |
|---|---|---|---|---|---|---|
| 1 | 19 | 25 | ♅ □ ☉ | | | |
| 2 | 11 | 6 | ☉ in Apogee. | | | |
| 4 | 1 | 19 | ☿ ☌ ☾ - - - | ☿ | 4 | 56 N. |
| 5 | 0 | 0 | ♈ Stationary. | | | |
| 5 | 13 | 19 | ☿ in Sup. ☌ ☉ | | | |
| 5 | 13 | 29 | ♀ ☌ ☾ - - - | ♀ | 6 | 1 N. |
| 11 | 5 | 52 | ☿ greatest Hel. Lat. N. | | | |
| 12 | 0 | 0 | ♃ in Aphelion. | | | |
| 15 | 14 | 41 | ♅ Stationary. | | | |
| 19 | 18 | 41 | ♃ ☌ χ Leonis | ✱ | 0 | 14 N. |
| 20 | 5 | 53 | ♄ ☌ ☾ - - - | ♄ | 6 | 25 S. |
| 20 | 19 | 13 | ♂ Stationary. | | | |
| 21 | 7 | 35 | ♂ ☌ ☾ - - - | ♂ | 11 | 45 S. |
| 22 | 17 | 9 | ♀ greatest Hel. Lat. N. | | | |
| 24 | 0 | 11 | ♅ ☌ ☾ - - - | ♅ | 4 | 25 S. |
| 24 | 21 | 25 | ☿ ☌ ♀ - - - | ☿ | 0 | 17 S. |
| 26 | 4 | 25 | ♃ ☌ ☾ - - - | ♃ | 2 | 33 S. |
| 28 | 17 | 13 | ☿ ☌ α Leonis | ✱ | 0 | 23 S. |
| 29 | 19 | 30 | ♀ ☌ α Leonis | ✱ | 1 | 7 S. |
| 31 | 13 | 18 | ♃ ☍ ☉ intens. of light 0·311 | | | |
| 31 | 15 | 16 | ♃ ☌ σ Leonis | ✱ | 0 | 15 N. |

### AUGUST.

| d | h | m | | | ° | ′ |
|---|---|---|---|---|---|---|
| 1 | 12 | 29 | ♃ □ ☉ | | | |
| 2 | 3 | 53 | ☿ ☌ ρ Leonis | ✱ | [illegible] | |
| 2 | 22 | 13 | ♃ ☌ γ Tauri | ✱ | [illegible] | |
| 3 | 18 | 20 | ☿ in ♍ | | | |
| 4 | 23 | 34 | ♀ ☌ ☾ - - - | ♀ | [illegible] | |
| 5 | 3 | 38 | ♃ ☌ δ$^{1}$ Tauri | ✱ | [illegible] | |
| 5 | 5 | 13 | ☿ ☌ ☾ - - - | ☿ | [illegible] | |
| 6 | 1 | 22 | ♃ ☌ δ$^{2}$ Tauri | ✱ | [illegible] | |
| 6 | 18 | 0 | ♂ greatest Hel. Lat. [illegible] | | | |
| 7 | 20 | 59 | ♄ ☍ ☉ | | | |
| 8 | 1 | 20 | ♄ ☌ ι Capricor. | ✱ | [illegible] | |
| 8 | 2 | 16 | ♃ ☌ π Tauri | ✱ | [illegible] | |
| 9 | 13 | 10 | ♃ ☌ θ$^{1}$ Tauri | ✱ | [illegible] | |
| 13 | 17 | 39 | ♃ ☌ ρ Tauri | ✱ | [illegible] | |
| 13 | 21 | 56 | ☿ in Aphelion. | | | |
| 15 | 2 | 38 | ☿ ☌ τ Leonis | ✱ | [illegible] | |
| 15 | 4 | 35 | ☿ greatest elong. [illegible] | | | |
| 15 | 8 | 49 | ♃ ☌ α Tauri | ✱ | [illegible] | |
| 16 | 13 | 6 | ♄ ☌ ☾ - - - | ♄ | [illegible] | |
| 17 | 0 | 0 | ♈ in Aphelion. | | | |
| 17 | 10 | 21 | ♂ ☌ ☾ - - - | ♂ | [illegible] | |
| 18 | 3 | 10 | ♂ ☍ ☉ | | | |
| 18 | 11 | 22 | ☿ ☌ ♀ - - - | ☿ | [illegible] | |
| 20 | 8 | 21 | ♅ ☌ ☾ - - - | ♅ | [illegible] | |
| 20 | 21 | 39 | ♈ ☍ ☉ intens. of light [illegible] | | | |
| 21 | 0 | 48 | ♀ ☌ ♃ - - - | ♃ | [illegible] | |
| 22 | 15 | 34 | ♃ ☌ ☾ - - - | ♃ | [illegible] | |
| 28 | 13 | 53 | ☿ Stationary. | | | |
| 30 | 10 | 23 | ♂ in Perihelion. | | | |
| 30 | 11 | 42 | ♃ Stationary. | | | |
| 30 | 13 | 30 | ♄ ☌ s Capricor. | ✱ | [illegible] | |

### SEPTEMBER.

| d | h | m | | | ° |
|---|---|---|---|---|---|
| 2 | 17 | 48 | ☿ ☌ ☾ - - - | ☿ | 0 [illegible] |
| 3 | 9 | 6 | ☿ greatest Hel. Lat. [illegible] |
| 4 | 0 | 49 | ♀ ☌ ☾ - - - | ♀ | 3 [illegible] |
| 5 | 7 | 28 | ♃ □ ☉ |
| 11 | 11 | 39 | ☿ in Inf. ☌ ☉ |
| 12 | 7 | 45 | ♃ ☌ y$^{1}$ Orionis | ✱ | 1 [illegible] |

## MEAN TIME.

### SEPTEMBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 2 | 19 | 22 | ♄ ☌ ☾ - - - ♄ | 6 | 28 S. |
| 3 | 10 | 31 | ♂ ☌ ☾ - - - ♂ | 11 | 15 S. |
| 5 | 16 | 33 | ♅ ☌ ☾ - - - ♅ | 4 | 10 S. |
| 5 | 18 | 45 | ♀ in ♍ | | |
| 8 | 19 | 17 | ♂ Stationary. | | |
| 8 | 23 | 29 | ♃ ☌ ☾ - - - ♃ | 2 | 9 S. |
| 9 | 0 | 0 | ♃ Stationary. | | |
| 9 | 18 | 15 | ♋ ☌ $y^3$ Orionis ✱ | 0 | 49 S. |
| 9 | 21 | 56 | ☿ Stationary. | | |
| 2 | 8 | 5 | ☿ in ♎ | | |
| 2 | 16 | 53 | ☉ enters ♎. Autumn comm$^{t}$. | | |
| 3 | 13 | 43 | ♀ ☌ λ Virginis ✱ | 0 | 55 N. |
| 6 | 21 | 38 | ☿ in Perihelion. | | |
| 7 | 4 | 18 | ☿ greatest elong. | 17 | 51 W. |
| 9 | 17 | 6 | ☿ ☌ ☾ - - - ☿ | 6 | 16 N. |
| 0 | 8 | 45 | ♀ ☌ $\alpha^2$ Libræ ✱ | 1 | 8 N. |

### OCTOBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 3 | 2 | ♅ ☍ ☉ | | |
| 2 | 12 | 59 | ♃ ☌ ☉ | | |
| 3 | 20 | 25 | ♀ ☌ ☾ - - - ♀ | 0 | 59 S. |
| 7 | 5 | 9 | ☿ greatest Hel. Lat. N. | | |
| 0 | 0 | 47 | ♄ ☌ ☾ - - - ♄ | 6 | 36 S. |
| 0 | 21 | 53 | ♀ ☌ κ Libræ ✱ | 1 | 20 N. |
| 0 | 22 | 57 | ♂ ☌ ☾ - - - ♂ | 9 | 12 S. |
| 2 | 17 | 28 | ♂ ☌ ♀ - - - ♀ | 10 | 24 S. |
| 2 | 18 | 43 | ♋ Stationary. | | |
| 3 | 5 | 6 | ♀ ☌ λ Libræ ✱ | 1 | 34 N. |
| 3 | 23 | 43 | ♅ ☌ ☾ - - - ♅ | 4 | 15 S. |
| 4 | 14 | 12 | ♀ ☌ δ Scorpii ✱ | 0 | 29 S. |
| 5 | 0 | 0 | ♀ Stationary. | | |
| 5 | 17 | 9 | ☿ ☌ ♃ - - - ☿ | 2 | 12 S. |
| 5 | 21 | 55 | ♀ ☌ $\omega^1$ Scorpii ✱ | 1 | 50 N. |
| 5 | 0 | 39 | ♀ ☌ $\omega^2$ Scorpii ✱ | 1 | 40 N. |
| 5 | 3 | 43 | ♃ ☌ ☾ - - - ♃ | 2 | 22 S. |
| 5 | 13 | 45 | ♄ Stationary. | | |
| 7 | 5 | 5 | ♂ ☌ ι Aquarii ✱ | 1 | 7 N. |
| 9 | 14 | 35 | ♀ ☌ g Ophiuchi ✱ | Occulted. | |
| 1 | 1 | 33 | ♀ in Aphelion. | | |

### OCTOBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 24 | 18 | 55 | ♃ □ ☉ | | |
| 26 | 8 | 5 | ☿ in Sup. ☌ ☉ | | |
| 28 | 19 | 25 | ♃ ☍ ☉ | | |
| 29 | 7 | 12 | ♀ ☌ A Ophiuchi ✱ | 1 | 19 S. |
| 30 | - | - | ☉ eclipsed, invis. at Green$^{h}$. | | |
| 30 | 14 | 6 | ♀ ☌ θ Ophiuchi ✱ | 0 | 23 N. |
| 30 | 17 | 6 | ☿ ☌ ☾ - - - ☿ | 0 | 35 N. |
| 30 | 17 | 35 | ☿ in ♍ | | |

### NOVEMBER.

| d | h | m | | ° | ′ |
|---|---|---|---|---|---|
| 1 | 10 | 2 | ♀ ☌ $e^2$ Ophiuchi ✱ | 1 | 37 N. |
| 2 | 15 | 41 | ♂ ☌ σ Aquarii ✱ | 1 | 0 N. |
| 2 | 15 | 44 | ♀ ☌ ☾ - - - ♀ | 5 | 27 S. |
| 4 | 15 | 35 | ♄ □ ☉ | | |
| 5 | 9 | 36 | ♋ ☌ $y^3$ Orionis ✱ | 0 | 20 S. |
| 6 | 6 | 49 | ♄ ☌ ☾ - - - ♄ | 6 | 40 S. |
| 7 | 23 | 17 | ♂ ☌ ☾ - - - ♂ | 7 | 19 S. |
| 9 | 21 | 12 | ☿ in Aphelion. | | |
| 10 | 5 | 13 | ♅ ☌ ☾ - - - ♅ | 4 | 20 S. |
| 11 | 22 | 35 | ♋ ☌ $y^1$ Orionis ✱ | 0 | 28 S. |
| 12 | 5 | 15 | ♃ ☌ ☾ - - - ♃ | 2 | 40 S. |
| 12 | 7 | 36 | ♀ ☌ λ Sagitt. ✱ | 0 | 28 N. |
| 12 | 15 | 19 | ♀ greatest Hel. Lat. S. | | |
| 13 | - | - | ☾ eclipsed, vis. at Green$^{h}$. | | |
| 14 | 23 | 48 | ♂ ☌ λ Aquarii ✱ | 1 | 15 N. |
| 15 | 17 | 45 | ♀ ☌ φ Sagitt. ✱ | 1 | 18 S. |
| 16 | 17 | 39 | ♀ □ ☉ | | |
| 17 | 15 | 26 | ♀ ☌ σ Sagitt. ✱ | 0 | 46 S. |
| 24 | 1 | 41 | ♋ ☌ $o^1$ Orionis ✱ | 1 | 34 S. |
| 25 | 23 | 16 | ♀ ☌ $h^2$ Sagitt. ✱ | 0 | 34 S. |
| 26 | 2 | 59 | ♂ ☌ φ Aquarii ✱ | 0 | 3 N. |
| 30 | 7 | 23 | ☿ ☌ ☾ - - - ☿ | 5 | 47 S. |
| 30 | 8 | 16 | ☿ greatest Hel. Lat. S. | | |
| 30 | 21 | 10 | ♄ ☌ s Capricor. ✱ | 1 | 52 N. |

## MEAN TIME.

### DECEMBER.

| d | h | m | | ° ′ |
|---|---|---|---|---|
| 1 | 9 | 22 | ♉ δ ☉ intens. of light | 0·619 |
| 2 | 10 | 42 | ♀ ☌ ☾ - - - ♀ | 7 43 S. |
| 3 | 15 | 38 | ♄ ☌ ☾ - - - ♄ | 6 36 S. |
| 5 | 18 | 32 | ☿ ☌ λ Sagitt. ✱ | 0 10 N. |
| 6 | 6 | 40 | ♂ ☌ ☾ - - - ♂ | 5 21 S. |
| 7 | 9 | 54 | ♅ ☌ ☾ - - - ♅ | 4 18 S. |
| 9 | 6 | 44 | ♃ ☌ ☾ - - - ♃ | 2 46 S. |
| 9 | 9 | 9 | ♉ ☌ α Tauri ✱ | 0 38 N. |
| 9 | 20 | 12 | ☿ greatest elong. | 20 36 E. |
| 11 | 0 | 0 | ♉ in Aphelion. | |
| 11 | 7 | 12 | ♉ ☌ ρ Tauri ✱ | 1 4 S. |
| 11 | 11 | 45 | ☿ ☌ σ Sagitt. ✱ | 1 42 S. |
| 12 | 0 | 0 | ♀ ☌ ♆ - - - ♆ | 17 52 N. |
| 15 | 5 | 2 | ♀ ☌ η Capricor. ✱ | 0 54 S. |
| 15 | 14 | 32 | ♅ Stationary. | |
| 16 | 16 | 25 | ♉ ☌ θ¹ Tauri ✱ | 0 3 S. |
| 17 | 18 | 15 | ☿ Stationary. | |
| 18 | 16 | 25 | ♉ ☌ π Tauri ✱ | 1 20 S. |
| 19 | 0 | 0 | ☾ greatest Hel. Lat. S. | |
| 19 | 7 | 19 | ☿ in ♑ | |
| 19 | 12 | 33 | ♀ ☌ ♄ - - - ♀ | 0 49 S. |

### DECEMBER.

| d | h | m | | ° |
|---|---|---|---|---|
| 19 | 13 | 46 | ♀ ☌ ι Capricor. ✱ | 0 |
| 20 | 2 | 6 | ♄ ☌ ι Capricor. ✱ | 0 |
| 20 | 3 | 26 | ♉ ☌ δ³ Tauri ✱ | 1 |
| 20 | 16 | 0 | ♀ greatest elong. | 47 |
| 21 | 4 | 26 | ♂ □ ☉ | |
| 21 | 10 | 26 | ☉ enters ♑. Winter ☌ | |
| 21 | 17 | 51 | ♉ ☌ δ² Tauri ✱ | 1 |
| 23 | 3 | 6 | ♉ ☌ δ¹ Tauri ✱ | 1 |
| 23 | 20 | 55 | ☿ in Perihelion. | |
| 24 | 2 | 58 | ♀ ☌ γ Capricor. ✱ | 1 |
| 25 | 23 | 16 | ♀ ☌ δ Capricor. ✱ | 1 |
| 26 | 6 | 30 | ♃ Stationary. | |
| 27 | 0 | 0 | ♉ ☌ γ Tauri ✱ | 0 |
| 27 | 5 | 6 | ☿ in Inf. ☌ ☉ | |
| 27 | 16 | 35 | ♀ ☌ μ Capricor. ✱ | 0 |
| 27 | 17 | 23 | ♅ □ ☉ | |
| 28 | 6 | 41 | ☿ ☌ ☾ - - - ☿ | 1 |
| 30 | 5 | 38 | ♀ ☌ δ Aquarii ✱ | 1 |
| 31 | 4 | 29 | ♄ ☌ ☾ - - - ♄ | 6 |
| 31 | 9 | 58 | ♀ ☌ ι Aquarii ✱ | 1 |
| 31 | 22 | 10 | ♀ ☌ ☾ - - - ♀ | 6 |

## ELEMENTS FOR DETERMINING THE GEOCENTRIC POSITION, MAGNITUDE, AND APPEARANCE OF SATURN'S RING.

| Mean Noon. | | *p* | *a* | *b* | *l* | *l'* |
|---|---|---|---|---|---|---|
| | | ° ′ | ″ | ″ | ° ′ | ° ′ |
| Jan. | 1 | + 7 34·4 | 34·64 | + 11·09 | + 18 40·5 | + 17 47·9 |
| Feb. | 10 | 7 25·6 | 34·38 | 9·99 | 16 53·6 | 17 22·0 |
| Mar. | 22 | 7 15·3 | 35·40 | 9·27 | 15 11·2 | 16 55·4 |
| May | 1 | 7 7·5 | 37·50 | 9·12 | 14 4·3 | 16 28·4 |
| June | 10 | 7 6·1 | 40·07 | 9·66 | 13 57·0 | 16 1·0 |
| July | 20 | 7 11·6 | 41·94 | 10·73 | 14 49·8 | 15 33·2 |
| Aug. | 29 | 7 19·4 | 41·89 | 11·60 | 16 4·7 | 15 4·8 |
| Oct. | 8 | 7 23·6 | 39·94 | 11·53 | 16 46·8 | 14 36·2 |
| Nov. | 17 | 7 21·7 | 37·38 | 10·58 | 16 26·7 | 14 7·0 |
| Dec. | 27 | 7 13·6 | 35·40 | 9·24 | 15 8·1 | 13 37·5 |
| — | 31 | + 7 12·4 | 35·26 | + 9·11 | + 14 57·8 | + 13 34·5 |

*p* denotes the inclination of the Northern semi-minor axis of the Ring to the circle of Declination; + East, — West.

*a* the *major* axis of the Ring.

*b* the *minor* axis; + North surface visible,
— South surface visible.

*l* the elevation of the Earth above the plane of the Ring, as seen from Saturn; + North, — South.

*l'* the elevation of the Sun above the plane of the Ring, as seen from Saturn; + North, — South.

## TABLE,

SHOWING THE MEAN TIME OF THE GREATEST LIBRATION OF THE MOON'S APPARENT DISC.

| | d | h | m | |
|---|---|---|---|---|
| Jan. | 12 | 12 | 46 | S. W. |
| | 27 | 17 | 17 | S. E. |
| Feb. | 9 | 16 | 26 | S. W. |
| | 22 | 21 | 26 | S. E. |
| Mar. | 9 | 9 | 1 | S. W. |
| | 21 | 18 | 5 | S. E. |
| Apr. | 5 | 4 | 22 | S. W. |
| | 18 | 10 | 27 | S. E. |
| May | 1 | 11 | 8 | S. W. |
| | 16 | 11 | 50 | S. E. |
| | 28 | 20 | 34 | S. W. |
| June | 13 | 16 | 35 | S. E. |
| | 25 | 21 | 11 | S. W. |
| July | 11 | 20 | 15 | S. E. |
| | 24 | 1 | 53 | S. W. |
| Aug. | 8 | 16 | 14 | S. E. |
| | 21 | 5 | 32 | S. W. |
| Sept. | 4 | 13 | 45 | S. E. |
| | 18 | 3 | 42 | S. W. |
| | 30 | 20 | 39 | S. E. |
| Oct. | 15 | 13 | 28 | S. W. |
| | 28 | 2 | 0 | S. E. |
| Nov. | 10 | 23 | 22 | S. W. |
| | 24 | 23 | 55 | S. E. |
| Dec. | 7 | 13 | 22 | S. W. |
| | 23 | 5 | 50 | S. E. |

The Moon's Libration is here supposed to take place in the plane of her Orbit:—and by the time of the greatest Libration of her Apparent Disc is to be understood the instant at which, to an observer at the centre of the Earth, the variation of the Disc from its mean state has attained its maximum.

The right-hand column indicates the quadrant of the Moon's Disc in which the Libration takes place, and in which the greatest change of the Moon's surface will become visible.

## TABLE,

SHOWING THE ILLUMINATED PORTION OF THE DISCS OF VENUS AND MARS.

| 1845. | VENUS. | MARS. |
|---|---|---|
| Jan. 15 | 0 ·870 | 0 ·926 |
| Feb. 14 | 0 ·925 | 0 ·903 |
| Mar. 15 | 0 ·963 | 0 ·884 |
| Apr. 15 | 0 ·990 | 0 ·870 |
| May 15 | 1 ·000 | 0 ·870 |
| June 15 | 0 ·990 | 0 ·893 |
| July 15 | 0 ·958 | 0 ·948 |
| Aug. 15 | 0 ·905 | 0 ·999 |
| Sept. 15 | 0 ·837 | 0 ·962 |
| Oct. 15 | 0 ·757 | 0 ·902 |
| Nov. 15 | 0 ·656 | 0 ·872 |
| Dec. 15 | 0 ·533 | 0 ·868 |

The numbers given in this Table represent the versed sines of the illuminated portion of the Discs, the apparent Diameters of the Planets being considered as *unity*.

## EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET, AUGUST 20, 1845.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1845. | | | h m s | ° ′ ″ |
| July 20 | 45 Aquarii - - | 6 | 22 10 44 ·72 | S. 14 4 13 ·4 |
| 21 | 45 Aquarii - - | 6 | 22 10 44 ·74 | 14 4 13 ·3 |
| 22 | 45 Aquarii - - | 6 | 22 10 44 ·76 | 14 4 13 ·1 |
| 23 | 45 Aquarii - - | 6 | 22 10 44 ·78 | 14 4 13 ·0 |
| | * - - - (*a*) | 8 | 22 22 8 ·13 | 17 7 57 ·5 |
| 24 | 45 Aquarii - - | 6 | 22 10 44 ·80 | 14 4 12 ·9 |
| | * - - - (*a*) | 8 | 22 22 8 ·15 | 17 7 57 ·5 |
| 25 | 45 Aquarii - - | 6 | 22 10 44 ·82 | 14 4 12 ·9 |
| | * - - - (*a*) | 8 | 22 22 8 ·17 | 17 7 57 ·4 |
| 26 | 45 Aquarii - - | 6 | 22 10 44 ·84 | 14 4 12 ·8 |
| 27 | * - - - (*b*) | 7.8 | 22 11 13 ·68 | 17 27 57 ·5 |
| 28 | * - - - (*b*) | 7.8 | 22 11 13 ·70 | 17 27 57 ·5 |
| | 53² Aquarii - | 6.7 | 22 18 13 ·62 | 17 31 15 ·5 |
| 29 | * - - - (*b*) | 7.8 | 22 11 13 ·72 | 17 27 57 ·4 |
| | 53² Aquarii - | 6.7 | 22 18 13 ·64 | 17 31 15 ·4 |
| 30 | 45 Aquarii - - | 6 | 22 10 44 ·91 | 14 4 12 ·5 |
| 31 | 45 Aquarii - - | 6 | 22 10 44 ·93 | 14 4 12 ·4 |
| Aug. 1 | 42 Aquarii - - | 6 | 22 8 32 ·84 | 13 35 37 ·8 |
| 2 | 42 Aquarii - - | 6 | 22 8 32 ·86 | 13 35 37 ·7 |
| 3 | 42 Aquarii - - | 6 | 22 8 32 ·87 | 13 35 37 ·7 |
| 4 | 42 Aquarii - - | 6 | 22 8 32 ·89 | 13 35 37 ·6 |
| 5 | ι Aquarii - - | 4.5 | 21 58 7 ·73 | 14 36 40 ·6 |
| 6 | ι Aquarii - - | 4.5 | 21 58 7 ·74 | 14 36 40 ·5 |
| 7 | ι Aquarii - - | 4.5 | 21 58 7 ·76 | 14 36 40 ·5 |
| 8 | ι Aquarii - - | 4.5 | 21 58 7 ·77 | S. 14 36 40 ·4 |

EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET, AUGUST 20, 1845.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1845. | | | h m s | ° ′ ″ |
| Aug. 9 | ι Aquarii - - | 4.5 | 21 58 7·78 | S. 14 36 40·3 |
| 10 | ι Aquarii - - | 4.5 | 21 58 7·79 | 14 36 40·3 |
| 11 | ι Aquarii - - | 4.5 | 21 58 7·80 | 14 36 40·2 |
| 12 | ι Aquarii - - | 4.5 | 21 58 7·81 | 14 36 40·2 |
| 13 | ι Aquarii - - | 4.5 | 21 58 7·82 | 14 36 40·1 |
| 14 | ι Aquarii - - | 4.5 | 21 58 7·83 | 14 36 40·1 |
| 15 | 35 Aquarii - - | 5.6 | 22 0 32·82 | 19 16 4·7 |
| 16 | 35 Aquarii - - | 5.6 | 22 0 32·83 | 19 16 4·7 |
| 17 | 29 Aquarii - - | 6 | 21 54 2·51 | 17 41 57·1 |
| 18 | 29 Aquarii - - | 6 | 21 54 2·52 | 17 41 57·1 |
| 19 | 29 Aquarii - - | 6 | 21 54 2·53 | 17 41 57·1 |
| 20 | μ Capricorni - | 5 | 21 44 54·44 | 14 16 14·7 |
| 21 | μ Capricorni - | 5 | 21 44 54·45 | 14 16 14·7 |
| 22 | μ Capricorni - | 5 | 21 44 54·45 | 14 16 14·7 |
| 23 | μ Capricorni - | 5 | 21 44 54·46 | 14 16 14·6 |
| | Piazzi XXI. 333 | 8 | 21 48 34·15 | 19 54 59·2 |
| 24 | μ Capricorni - | 5 | 21 44 54·46 | 14 16 14·6 |
| | Piazzi XXI. 333 | 8 | 21 48 34·15 | 19 54 59·2 |
| 25 | μ Capricorni - | 5 | 21 44 54·47 | 14 16 14·6 |
| | Piazzi XXI. 333 | 8 | 21 48 34·16 | 19 54 59·3 |
| 26 | μ Capricorni - | 5 | 21 44 54·47 | 14 16 14·6 |
| | Piazzi XXI. 333 | 8 | 21 48 34·16 | 19 54 59·3 |
| 27 | μ Capricorni - | 5 | 21 44 54·48 | 14 16 14·6 |
| 28 | μ Capricorni - | 5 | 21 44 54·48 | 14 16 14·6 |
| 29 | δ Capricorni - | 3.4 | 21 38 32·89 | S. 16 49 8·2 |

## EPHEMERIS OF THE STARS PROPER TO BE OBSERVED WITH MARS, NEAR THE OPPOSITION OF THE PLANET, AUGUST 20, 1845.

| Date. | Star. | Magnitude. | *Apparent* Right Ascension. | *Apparent* Declination. |
|---|---|---|---|---|
| 1845. | | | h m s | ° ′ ″ |
| Aug. 30 | δ Capricorni - | 3.4 | 21 38 32 ·89 | S. 16 49 8 ·2 |
| 31 | δ Capricorni - | 3.4 | 21 38 32 ·89 | 16 49 8 ·3 |
| Sept. 1 | δ Capricorni - | 3.4 | 21 38 32 ·89 | 16 49 8 ·3 |
| 2 | δ Capricorni - | 3.4 | 21 38 32 ·89 | 16 49 8 ·3 |
| 3 | δ Capricorni - | 3.4 | 21 38 32 ·89 | 16 49 8 ·3 |
| 4 | δ Capricorni - | 3.4 | 21 38 32 ·88 | 16 49 8 ·3 |
| 5 | δ Capricorni - | 3.4 | 21 38 32 ·88 | 16 49 8 ·3 |
| 6 | κ Capricorni - | 5 | 21 34 4 ·09 | 19 33 43 ·6 |
| 7 | κ Capricorni - | 5 | 21 34 4 ·09 | 19 33 43 ·6 |
| 8 | κ Capricorni - | 5 | 21 34 4 ·08 | 19 33 43 ·7 |
| 9 | κ Capricorni - | 5 | 21 34 4 ·08 | 19 33 43 ·7 |
| 10 | κ Capricorni - | 5 | 21 34 4 ·07 | 19 33 43 ·8 |
| 11 | κ Capricorni - | 5 | 21 34 4 ·07 | 19 33 43 ·8 |
| 12 | κ Capricorni - | 5 | 21 34 4 ·06 | 19 33 43 ·9 |
| 13 | κ Capricorni - | 5 | 21 34 4 ·06 | 19 33 43 ·9 |
| 14 | κ Capricorni - | 5 | 21 34 4 ·05 | 19 33 44 ·0 |
| 15 | κ Capricorni - | 5 | 21 34 4 ·05 | 19 33 44 ·0 |
| 16 | κ Capricorni - | 5 | 21 34 4 ·04 | 19 33 44 ·1 |
| 17 | κ Capricorni - | 5 | 21 34 4 ·03 | 19 33 44 ·2 |
| 18 | κ Capricorni - | 5 | 21 34 4 ·02 | 19 33 44 ·2 |
| 19 | κ Capricorni - | 5 | 21 34 4 ·02 | 19 33 44 ·3 |
| 20 | κ Capricorni | 5 | 21 34 4 ·01 | S. 19 33 44 ·3 |

## MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

| Day of the Month. | JANUARY. | | FEBRUARY. | | MARCH. | | APRIL. | | MAY. | | JUNE. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h |
| 1 | 6 59 | 19 24 | 8 19 | 20 59 | 6 58 | 19 26 | 9 22 | 22 5 | 10 23 | 23 1 | 11 55 | - |
| 2 | 7 51 | 20 21 | 9 42 | 22 27 | 8 2 | 20 43 | 10 48 | 23 29 | 11 32 | — | 0 22 | 12 |
| 3 | 8 57 | 21 34 | 11 12 | 23 53 | 9 27 | 22 15 | — | 12 1 | 0 1 | 12 28 | 1 10 | 13 |
| 4 | 10 13 | 22 51 | — | 12 26 | 10 59 | 23 44 | 0 30 | 12 53 | 0 50 | 13 13 | 1 53 | 14 |
| 5 | 11 28 | — | 1 0 | 13 28 | — | 12 20 | 1 16 | 13 39 | 1 35 | 13 54 | 2 30 | 14 |
| 6 | 0 4 | 12 37 | 1 53 | 14 18 | 0 47 | 13 15 | 2 0 | 14 17 | 2 13 | 14 33 | 3 5 | 15 |
| 7 | 1 6 | 13 35 | 2 40 | 15 3 | 1 40 | 14 2 | 2 37 | 14 55 | 2 51 | 15 7 | 3 40 | 15 |
| 8 | 2 1 | 14 25 | 3 24 | 15 44 | 2 24 | 14 44 | 3 14 | 15 31 | 3 26 | 15 41 | 4 14 | 16 |
| 9 | 2 52 | 15 16 | 4 3 | 16 24 | 3 2 | 15 20 | 3 47 | 16 4 | 3 57 | 16 15 | 4 48 | 17 |
| 10 | 3 39 | 16 1 | 4 42 | 17 1 | 3 39 | 15 57 | 4 21 | 16 37 | 4 32 | 16 49 | 5 25 | 17 |
| 11 | 4 24 | 16 46 | 5 19 | 17 35 | 4 14 | 16 31 | 4 53 | 17 11 | 5 8 | 17 24 | 6 3 | 18 |
| 12 | 5 6 | 17 27 | 5 54 | 18 13 | 4 49 | 17 5 | 5 29 | 17 49 | 5 44 | 18 6 | 6 47 | 19 |
| 13 | 5 49 | 18 7 | 6 30 | 18 52 | 5 21 | 17 40 | 6 8 | 18 29 | 6 29 | 18 52 | 7 38 | 20 |
| 14 | 6 29 | 18 51 | 7 12 | 19 38 | 5 58 | 18 16 | 6 53 | 19 20 | 7 18 | 19 46 | 8 40 | 21 |
| 15 | 7 12 | 19 35 | 8 7 | 20 43 | 6 39 | 18 59 | 7 53 | 20 29 | 8 21 | 20 58 | 9 45 | 22 |
| 16 | 8 0 | 20 31 | 9 25 | 22 8 | 7 24 | 19 56 | 9 12 | 21 49 | 9 31 | 22 4 | 10 48 | 23 |
| 17 | 9 9 | 21 45 | 10 51 | 23 31 | 8 33 | 21 18 | 10 27 | 23 1 | 10 35 | 23 7 | 11 51 | - |
| 18 | 10 22 | 23 2 | — | 12 7 | 10 0 | 22 42 | 11 33 | — | 11 36 | — | 0 22 | 12 |
| 19 | 11 38 | — | 0 37 | 13 1 | 11 20 | 23 55 | 0 1 | 12 23 | 0 1 | 12 27 | 1 17 | 13 |
| 20 | 0 15 | 12 41 | 1 22 | 13 41 | — | 12 23 | 0 46 | 13 8 | 0 51 | 13 17 | 2 10 | 14 |
| 21 | 1 5 | 13 28 | 2 1 | 14 19 | 0 48 | 13 8 | 1 28 | 13 47 | 1 38 | 14 2 | 3 2 | 15 |
| 22 | 1 49 | 14 6 | 2 36 | 14 53 | 1 29 | 13 47 | 2 6 | 14 27 | 2 28 | 14 49 | 3 52 | 16 |
| 23 | 2 26 | 14 42 | 3 9 | 15 26 | 2 5 | 14 20 | 2 48 | 15 8 | 3 13 | 15 37 | 4 40 | 17 |
| 24 | 3 0 | 15 17 | 3 42 | 15 58 | 2 39 | 14 56 | 3 29 | 15 50 | 4 0 | 16 26 | 5 29 | 17 |
| 25 | 3 32 | 15 49 | 4 15 | 16 34 | 3 13 | 15 34 | 4 12 | 16 34 | 4 50 | 17 15 | 6 18 | 18 |
| 26 | 4 5 | 16 21 | 4 52 | 17 8 | 3 51 | 16 9 | 4 58 | 17 23 | 5 42 | 18 7 | 7 8 | 19 |
| 27 | 4 37 | 16 56 | 5 28 | 17 47 | 4 29 | 16 49 | 5 47 | 18 14 | 6 36 | 19 4 | 8 3 | 20 |
| 28 | 5 13 | 17 31 | 6 8 | 18 31 | 5 9 | 17 32 | 6 44 | 19 16 | 7 36 | 20 6 | 9 8 | 21 |
| 29 | 5 51 | 18 9 | - - | - - | 5 54 | 18 22 | 7 50 | 20 28 | 8 38 | 21 17 | 10 9 | 22 |
| 30 | 6 31 | 18 54 | - - | - - | 6 49 | 19 19 | 9 9 | 21 47 | 9 48 | 22 20 | 11 18 | 23 |
| 31 | 7 19 | 19 45 | - - | - - | 7 54 | 20 36 | - - | - - | 10 52 | 23 23 | - - | - |

If the time of High Water be required, according to the *civil* mode of reckoning:

1. *For the Morning Tide:*—With the day of the month *preceding* the given dat take the time opposite thereto from the 2nd column of the month, and diminish it 12 hours.

2. *For the Afternoon Tide:*—With the given date, take the time opposite there from the 1st column of the month.

## MEAN TIME OF HIGH WATER AT LONDON BRIDGE,

Reckoning from Noon of each Day.

| Day of the Month. | JULY. | | AUGUST. | | SEPTEMBER. | | OCTOBER. | | NOVEMBER. | | DECEMBER. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m | h m |
| 1 | — | 12 20 | 1 12 | 13 32 | 2 2 | 14 18 | 2 3 | 14 19 | 2 47 | 15 8 | 3 15 | 15 37 |
| 2 | 0 45 | 13 8 | 1 53 | 14 11 | 2 36 | 14 51 | 2 38 | 14 53 | 3 28 | 15 50 | 4 0 | 16 25 |
| 3 | 1 30 | 13 52 | 2 28 | 14 47 | 3 7 | 15 23 | 3 12 | 15 30 | 4 10 | 16 33 | 4 49 | 17 13 |
| 4 | 2 12 | 14 29 | 3 2 | 15 18 | 3 39 | 15 55 | 3 47 | 16 6 | 4 56 | 17 21 | 5 39 | 18 7 |
| 5 | 2 49 | 15 7 | 3 35 | 15 49 | 4 12 | 16 31 | 4 25 | 16 45 | 5 46 | 18 11 | 6 33 | 18 59 |
| 6 | 3 24 | 15 39 | 4 5 | 16 20 | 4 46 | 17 5 | 5 6 | 17 27 | 6 42 | 19 14 | 7 30 | 20 2 |
| 7 | 3 57 | 16 12 | 4 38 | 16 55 | 5 25 | 17 44 | 5 53 | 18 21 | 7 51 | 20 30 | 8 38 | 21 13 |
| 8 | 4 29 | 16 45 | 5 11 | 17 29 | 6 6 | 18 32 | 6 50 | 19 23 | 9 11 | 21 47 | 9 47 | 22 21 |
| 9 | 5 2 | 17 21 | 5 49 | 18 9 | 6 58 | 19 29 | 7 59 | 20 45 | 10 26 | 23 3 | 10 57 | 23 31 |
| 10 | 5 38 | 17 59 | 6 30 | 18 55 | 8 7 | 20 52 | 9 29 | 22 13 | 11 34 | — | — | 12 1 |
| 11 | 6 19 | 18 41 | 7 22 | 19 50 | 9 37 | 22 22 | 10 52 | 23 28 | 0 2 | 12 28 | 0 27 | 12 51 |
| 12 | 7 4 | 19 28 | 8 26 | 21 7 | 11 5 | 23 43 | 11 58 | — | 0 49 | 13 13 | 1 13 | 13 36 |
| 13 | 7 55 | 20 25 | 9 48 | 22 30 | — | 12 14 | 0 24 | 12 47 | 1 34 | 13 54 | 1 56 | 14 16 |
| 14 | 9 1 | 21 37 | 11 14 | 23 52 | 0 42 | 13 7 | 1 12 | 13 33 | 2 15 | 14 34 | 2 37 | 14 55 |
| 15 | 10 12 | 22 49 | — | 12 23 | 1 33 | 13 56 | 1 53 | 14 13 | 2 51 | 15 11 | 3 12 | 15 28 |
| 16 | 11 27 | — | 0 56 | 13 23 | 2 15 | 14 37 | 2 32 | 14 52 | 3 27 | 15 45 | 3 47 | 16 3 |
| 17 | 0 0 | 12 34 | 1 49 | 14 11 | 2 56 | 15 16 | 3 12 | 15 30 | 4 1 | 16 18 | 4 20 | 16 37 |
| 18 | 1 3 | 13 33 | 2 37 | 14 58 | 3 36 | 15 54 | 3 48 | 16 5 | 4 35 | 16 53 | 4 54 | 17 11 |
| 19 | 1 58 | 14 25 | 3 20 | 15 42 | 4 13 | 16 31 | 4 21 | 16 40 | 5 12 | 17 31 | 5 31 | 17 49 |
| 20 | 2 51 | 15 15 | 4 1 | 16 22 | 4 48 | 17 7 | 4 58 | 17 16 | 5 52 | 18 13 | 6 7 | 18 27 |
| 21 | 3 39 | 16 1 | 4 41 | 17 1 | 5 26 | 17 45 | 5 36 | 17 56 | 6 36 | 19 0 | 6 48 | 19 11 |
| 22 | 4 22 | 16 46 | 5 20 | 17 40 | 6 5 | 18 27 | 6 18 | 18 43 | 7 28 | 19 59 | 7 37 | 20 5 |
| 23 | 5 7 | 17 29 | 5 59 | 18 19 | 6 50 | 19 17 | 7 7 | 19 42 | 8 35 | 21 11 | 8 39 | 21 14 |
| 24 | 5 51 | 18 12 | 6 41 | 19 3 | 7 50 | 20 30 | 8 20 | 20 59 | 9 45 | 22 16 | 9 49 | 22 23 |
| 25 | 6 35 | 18 58 | 7 29 | 19 59 | 9 11 | 21 53 | 9 38 | 22 14 | 10 47 | 23 20 | 10 58 | 23 32 |
| 26 | 7 22 | 19 46 | 8 36 | 21 16 | 10 32 | 23 9 | 10 49 | 23 20 | 11 48 | — | — | 12 3 |
| 27 | 8 14 | 20 50 | 9 57 | 22 37 | 11 43 | — | 11 50 | — | 0 13 | 12 35 | 0 31 | 12 56 |
| 28 | 9 24 | 22 0 | 11 15 | 23 51 | 0 11 | 12 32 | 0 11 | 12 33 | 1 0 | 13 24 | 1 23 | 13 49 |
| 29 | 10 36 | 23 16 | — | 12 21 | 0 53 | 13 10 | 0 53 | 13 13 | 1 45 | 14 6 | 2 13 | 14 38 |
| 30 | 11 50 | — | 0 43 | 13 6 | 1 30 | 13 46 | 1 31 | 13 50 | 2 29 | 14 52 | 3 5 | 15 29 |
| 31 | 0 23 | 12 49 | 1 26 | 13 45 | - - | - - | 2 9 | 14 29 | - - | - - | 3 52 | 16 15 |

*Example:*—Required the Mean Time of High Water, at London Bridge, for the Morning and Afternoon of Jan. 22, 1845.

1. Opposite the day *preceding*, viz. 21, and in the 2nd column, under JANUARY, is $13^h\ 28^m$, which, being diminished by $12^h$, gives $1^h\ 28^m$ for the Time of High Water in the Morning.

2. Opposite the given date, and in the 1st column, under JANUARY, is $1^h\ 49^m$ which is the Time of High Water in the Afternoon.

## TIME OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON, AT THE UNDERMENTIONED PORTS AND PLACES.

| Place. | Situation. | Time of High Water. h | m |
|---|---|---|---|
| Aberdeen Bar | Scotland | 1 | 11 |
| Aberdovy | Wales | 7 | 30 |
| Aberystwith | Wales | 7 | 30 |
| Achill Head | Ireland | 6 | 0 |
| Agnes (St.) | Scilly Isles | 4 | 30 |
| Air Point | Isle of Man | 11 | 7 |
| Aldborough | England | 10 | 45 |
| Alderney Pier | English Channel | 6 | 45 |
| Amlwch Port | Anglesea | 10 | 30 |
| Antwerp | Netherlands | 4 | 25 |
| Arran Isle | Scotland | 11 | 15 |
| Arundel Bar | England | 11 | 15 |
| Ballyshannon Bar | Ireland | 5 | 30 |
| Balta | Shetland | 9 | 45 |
| Baltimore | Ireland | 3 | 45 |
| Banff | Scotland | 0 | 41 |
| Bantry Bay | Ireland | 3 | 46 |
| Bardsey Island | Wales | 8 | 0 |
| Barmouth | Wales | 7 | 55 |
| Barnstaple Bar | England | 5 | 30 |
| Beachy Head | England | 11 | 50 |
| Beaumaris | Wales | 10 | 26 |
| Belfast | Ireland | 10 | 5 |
| Berwick | England | 2 | 18 |
| Blakeney Harbour | England | 6 | 50 |
| Blythe | England | 2 | 45 |
| Bolt Head | England | 5 | 45 |
| Bordeaux | France | 6 | 52 |
| Boston | England | 7 | 15 |
| Boulogne | France | 11 | 26 |
| Brehat Island | France | 5 | 52 |
| Brest Harbour | France | 3 | 46 |
| Bridgewater | England | 6 | 45 |
| Bridlington | England | 4 | 30 |
| Bridport | England | 6 | 0 |
| Brielle | Netherlands | 3 | 0 |
| Brighton | England | 11 | 38 |
| Bristol | England | 7 | 15 |
| Brouwershaven | Netherlands | 2 | 0 |
| Burnt Island | Scotland | 2 | 30 |
| Caermarthen Bar | Wales | 6 | 10 |
| Calais | France | 11 | 48 |
| Caldy Island | Coast of Wales | 6 | 0 |
| Calf of Man | St. Geo. Channel | 11 | 5 |
| Cancale Bay | France | 6 | 9 |
| Cantire (Mull) | Scotland | 9 | 0 |
| Cardigan Bar | Wales | 7 | 0 |
| Carlingford Bar | Ireland | 10 | 40 |
| Carnarvon Bar | Wales | 9 | 20 |
| Chatham | England | 0 | 54 |
| Chausey Islands | France | 6 | 13 |
| Cherbourg | France | 7 | 38 |
| Chichester Harbour | England | 11 | 30 |
| Christchurch Harbour | England | 8 | 50 |
| Clear Cape | Ireland | 4 | 0 |
| Coquet Island | England | 2 | 45 |
| Cordonan | France | 3 | 56 |
| Cork Harbour | Ireland | 4 | 30 |
| Cornwall Cape | England | 4 | 30 |
| Cowes | Isle of Wight | 10 | 45 |
| Cromartie | Scotland | 11 | 45 |
| Cuckolds Point | River Thames | 2 | 1 |
| Cuxhaven | Germany | 1 | 0 |
| Dartmouth Harbour | England | 6 | 3 |
| Deal | England | 11 | 13 |
| Dee (River) | Scotland | 0 | 43 |
| Dielette Harbour | France | 6 | 43 |
| Dieppe | France | 11 | 2 |
| Dingle Bay | Ireland | 3 | 30 |
| Donaghadee Pier | Ireland | 9 | 13 |
| Donegal Bar | Ireland | 5 | 5 |
| Douglas's Harbour | Isle of Man | 11 | 10 |
| Dover Pier | England | 11 | 10 |
| Downing's Bay / Sheephaven | Ireland | 3 | 20 |
| Downs (Stream) | England | 2 | 45 |
| Dublin Bar | Ireland | 11 | 15 |
| Dunbar | Scotland | 2 | 20 |
| Duncansby Head | Scotland | 8 | 15 |
| Dundalk Bar | Ireland | 11 | 0 |
| Dundee | Scotland | 2 | 35 |
| Dungarvon | Ireland | 4 | 30 |
| Dungeness | England | 10 | 50 |
| Dunkerque | France | 0 | 15 |
| Eddystone | English Chan. | 5 | 15 |
| Exmouth Bar | England | 6 | 25 |
| Eyemouth | Scotland | 2 | 15 |
| Falmouth | England | 5 | 15 |
| Fécamp | France | 10 | 45 |
| Flamboro' Head | England | 4 | 30 |
| Flatholm | England | 6 | 37 |
| Flushing | Netherlands | 1 | 20 |
| Fowey | England | 5 | 30 |
| Galloway (Mull) | Scotland | 11 | 15 |
| Galway Bay | Ireland | 4 | 30 |
| Glenan Islands | France | 3 | 25 |
| Goeree (West Gat.) | Holland | 1 | 45 |
| Granville | France | 6 | 9 |
| Gravelines | France | 11 | 53 |
| Gravesend | England | 1 | 30 |

## E OF HIGH WATER, ON THE FULL AND CHANGE OF THE MOON, AT THE UNDERMENTIONED PORTS AND PLACES.

| PLACE. | SITUATION. | Time of High Water. h | m |
|---|---|---|---|
| ck - - | W. C. of Scotland | 11 | 45 |
| ey Pier - | English Channel | 6 | 30 |
| et - - | River Thames - | 12 | 0 |
| pool - - | England- - - | 3 | 45 |
| h - - | England- - - | 11 | 30 |
| gs - - | England- - - | 10 | 36 |
| de Grace | France - - - | 9 | 52 |
| land - - | German Ocean - | 11 | 0 |
| oetsluis - | Holland- - - | 2 | 0 |
| ey Bay - | England- - - | 11 | 30 |
| ad Bay - | Wales - - - | 10 | 0 |
| sland Harb. | England - - | 2 | 30 |
| ur Harbour | France - - - | 9 | 30 |
| Point - | Jutland - - - | 12 | 0 |
| Harbour | Ireland - - - | 11 | 8 |
| - - - | England- - - | 6 | 0 |
| er River Ent. | England- - - | 5 | 30 |
| h - - | England- - - | 12 | 0 |
| Bas - - | France - - - | 4 | 50 |
| (St. Aubin's) | English Channel | 6 | 10 |
| re River | Ireland - - - | 3 | 30 |
| Road - | Bristol Channel - | 6 | 45 |
| own Harb. | Ireland - - - | 11 | 12 |
| Harbour | Ireland - - - | 4 | 30 |
| dbright - | Scotland- - - | 11 | 15 |
| ugue Harb. | France - - - | 8 | 45 |
| End - | England- - - | 4 | 30 |
| Pier - - | Scotland- - - | 2 | 22 |
| k Harbour | Shetland- - - | 10 | 30 |
| Islands - | Scotland- - - | 6 | 0 |
| ool Dock | England- - - | 11 | 22 |
| n Bridge - | River Thames - | 2 | 7 |
| te Pier - | England- - - | 0 | 5 |
| l Haven Ent. | Wales - - - | 5 | 45 |
| ead Pier - | England- - - | 6 | 30 |
| se - - | Scotland- - - | 1 | 45 |
| x- - - | N. C. of France | 5 | 15 |
| s Point - | Isle of Wight - | 9 | 45 |
| stle - - | England- - - | 4 | 0 |
| ven - - | England- - - | 11 | 50 |
| rt - - | Wales - - - | 6 | 45 |
| rt - - | France - - - | 11 | 45 |
| ght (Stream) | River Thames - | 1 | 9 |
| ness - - | England- - - | 10 | 40 |
| - - - | Flanders- - - | 0 | 55 |
| oke Dock Yd. | Wales - - - | 6 | 4 |
| d Frith - | Scotland - - - | 10 | 30 |
| ice - - | England - - - | 4 | 30 |

| PLACE. | SITUATION. | Time of High Water. h | m |
|---|---|---|---|
| Peterhead - - - | Scotland - - | 0 | 45 |
| Plymouth Dock Yard | England - - | 5 | 33 |
| Portland Race (Stream) | England - - | 9 | 15 |
| Portland Road- - | England - - | 6 | 15 |
| Port Patrick - - | Scotland - - | 11 | 0 |
| Portsmouth Dock Yd. | England - - | 11 | 40 |
| Ramsgate Harbour | England - - | 11 | 20 |
| Rathlin I., Church Bay | N. C. of Irel. | 9 | 0 |
| Rye Harbour - - | England - - | 10 | 40 |
| Salcombe - - - | England - - | 5 | 50 |
| Saltees - - - - | Ireland - - | 5 | 40 |
| Scalloway - - - | Shetland- - | 9 | 45 |
| Scarborough - - | England - - | 4 | 25 |
| Scilly Islands - - | England - - | 4 | 32 |
| Selsea Harbour - | England - - | 11 | 15 |
| Shannon Mouth - | Ireland - - | 3 | 50 |
| Sheerness Dock Yard | England - - | 0 | 39 |
| Shields- - - - | England - - | 3 | 0 |
| Shoreham Harbour | England - - | 11 | 15 |
| Skerries - - - | Ireland - - | 4 | 45 |
| Sligo Bay, Ballisadare | Ireland - - | 5 | 59 |
| Solebay - - - | England - - | 10 | 30 |
| Southampton - - | England - - | 11 | 40 |
| Spithead (Stream)- | England - - | 9 | 30 |
| Spurn Point - - | England - - | 5 | 20 |
| St. Helen's Harbour | England - - | 11 | 0 |
| St. Ives - - - | England - - | 4 | 30 |
| St. Malo - - - | France - - | 6 | 5 |
| Stromness - - - | Orkneys - - | 9 | 0 |
| Sunderland - - | England - - | 3 | 0 |
| Swansea Bay - - | Wales - - | 5 | 56 |
| Tay Bar - - - | Scotland - - | 2 | 5 |
| Tees River Bar - | England - - | 3 | 30 |
| Terschelling, West | Holland - - | 8 | 40 |
| Texel, Helder Road E. Stream - | Holland - - | 9 | 0 |
| Torbay- - - - | England - - | 6 | 5 |
| Tralee Bay - - | Ireland - - | 3 | 45 |
| Tynemouth Bar - | England - - | 2 | 50 |
| Waterford Harbour | Ireland - - | 5 | 50 |
| Wexford Harbour - | Ireland - - | 7 | 30 |
| Weymouth - - | England - - | 6 | 30 |
| Whitby - - - | England - - | 3 | 45 |
| Wick - - - - | Scotland - - | 11 | 7 |
| Wicklow - - - | Ireland - - | 9 | 0 |
| Wisbeach - - - | England - - | 7 | 30 |
| Wranger Oog - - | E. Friesland - | 12 | 0 |
| Yarmouth Roads - | England - - | 8 | 40 |
| Youghall - - - | Ireland - - | 5 | 0 |

## TABLE, SHOWING THE CORRECTION REQUIRED ON ACC OF SECOND DIFFERENCES,

In finding the Greenwich Time corresponding to a reduced Lunar Dist

*Arguments*:—Approximate Interval and Difference of Proportional Logarit

| Approximate Interval. | | Difference of the Proportional Logarithms in the Ephemeri | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 42 | 44 | 46 |
| h m | h m | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s |
| 0 0 | 3 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 10 | 2 50 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| 0 20 | 2 40 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 6 |
| 0 30 | 2 30 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 8 | 8 |
| 0 40 | 2 20 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 |
| 0 50 | 2 10 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 12 |
| 1 0 | 2 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 8 | 9 | 9 | 10 | 10 | 11 | 12 | 12 | 13 |
| 1 10 | 1 50 | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 11 | 12 | 12 | 13 | 14 |
| 1 20 | 1 40 | 1 | 1 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 7 | 8 | 9 | 9 | 10 | 10 | 11 | 12 | 12 | 13 | 14 | 14 |
| 1 30 | 1 30 | 1 | 1 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 6 | 7 | 8 | 8 | 9 | 9 | 10 | 11 | 11 | 12 | 12 | 13 | 14 | 14 |

| | | Difference of the Proportional Logarithms in the Ephemeris. | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 | 70 | 72 | 74 | 76 | 78 | 80 | 82 | 84 | 86 | 88 | 90 | 92 | 94 | 96 | 98 |
| h m | h m | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s |
| 0 0 | 3 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 10 | 2 50 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 0 20 | 2 40 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 10 | 10 | 10 | 10 | 11 | 11 | 11 | 11 | 12 | 12 | 12 |
| 0 30 | 2 30 | 9 | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 17 | 17 |
| 0 40 | 2 20 | 12 | 12 | 13 | 13 | 13 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 21 | 21 |
| 0 50 | 2 10 | 14 | 14 | 15 | 15 | 16 | 16 | 16 | 17 | 17 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 22 | 22 | 22 | 23 | 23 | 24 | 24 |
| 1 0 | 2 0 | 15 | 16 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 21 | 21 | 22 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 26 | 27 | 27 |
| 1 10 | 1 50 | 16 | 17 | 17 | 18 | 18 | 19 | 19 | 20 | 21 | 21 | 22 | 22 | 23 | 24 | 24 | 25 | 25 | 26 | 27 | 27 | 28 | 28 | 29 |
| 1 20 | 1 40 | 17 | 17 | 18 | 19 | 19 | 20 | 20 | 21 | 21 | 22 | 23 | 23 | 24 | 25 | 25 | 26 | 26 | 27 | 28 | 28 | 29 | 29 | 30 |
| 1 30 | 1 30 | 17 | 18 | 18 | 19 | 19 | 20 | 21 | 21 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 26 | 27 | 27 | 28 | 29 | 29 | 30 | 31 |

| | | Difference of the Proportional Logarithms in the Ephemer | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 104 | 106 | 108 | 110 | 112 | 114 | 116 | 118 | 120 | 122 | 124 | 126 | 128 | 130 | 132 | 134 |
| h m | h m | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s |
| 0 0 | 3 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 10 | 2 50 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 |
| 0 20 | 2 40 | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 16 | 16 |
| 0 30 | 2 30 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 22 | 23 | 23 |
| 0 40 | 2 20 | 22 | 23 | 23 | 24 | 24 | 25 | 25 | 25 | 26 | 26 | 27 | 27 | 28 | 28 | 28 | 29 |
| 0 50 | 2 10 | 26 | 26 | 27 | 27 | 28 | 29 | 29 | 29 | 30 | 30 | 31 | 31 | 32 | 32 | 33 | 33 |
| 1 0 | 2 0 | 29 | 29 | 30 | 30 | 31 | 31 | 32 | 33 | 33 | 34 | 34 | 35 | 35 | 36 | 37 | 37 |
| 1 10 | 1 50 | 31 | 31 | 32 | 32 | 33 | 34 | 34 | 35 | 35 | 36 | 37 | 37 | 38 | 38 | 39 | 40 |
| 1 20 | 1 40 | 32 | 33 | 33 | 34 | 34 | 35 | 35 | 36 | 37 | 38 | 38 | 39 | 39 | 40 | 41 | 41 |
| 1 30 | 1 30 | 32 | 33 | 34 | 34 | 35 | 35 | 36 | 36 | 37 | 38 | 39 | 39 | 40 | 40 | 41 | 42 |

The Correction is to be *added* to the approximate Greenwich Time when the Proportional Log in the Ephemeris are *decreasing*, and *subtracted* when they are *increasing*.

## TABLES FOR DETERMINING THE LATITUDE BY OBSERVATIONS OF THE POLE STAR OUT OF THE MERIDIAN.

### TABLE I.

Containing the *First* Correction.

*Argument:*—Sidereal Time of Observation.

| Sidereal Time. | Correction. | Sidereal Time. | Sidereal Time. | Correction. | Sidereal Time. |
|---|---|---|---|---|---|
| h m | ° ′ ″ | h m | h m | ° ′ ″ | h m |
| 0 0 | − 1 26 43 + | 12 0 | 6 0 | − 0 25 0 + | 18 0 |
| 10 | 1 27 44 | 10 | 10 | 0 21 12 | 10 |
| 20 | 1 28 34 | 20 | 20 | 0 17 21 | 20 |
| 30 | 1 29 14 | 30 | 30 | 0 13 28 | 30 |
| 40 | 1 29 45 | 40 | 40 | 0 9 34 | 40 |
| 50 | 1 30 4 | 50 | 50 | 0 5 38 | 50 |
| 1 0 | 1 30 14 | 13 0 | 7 0 | − 0 1 42 + | 19 0 |
| 10 | 1 30 13 | 10 | 10 | + 0 2 14 − | 10 |
| 20 | 1 30 2 | 20 | 20 | 0 6 10 | 20 |
| 30 | 1 29 41 | 30 | 30 | 0 10 5 | 30 |
| 40 | 1 29 10 | 40 | 40 | 0 13 59 | 40 |
| 50 | 1 28 28 | 50 | 50 | 0 17 52 | 50 |
| 2 0 | 1 27 36 | 14 0 | 8 0 | 0 21 42 | 20 0 |
| 10 | 1 26 34 | 10 | 10 | 0 25 30 | 10 |
| 20 | 1 25 23 | 20 | 20 | 0 29 16 | 20 |
| 30 | 1 24 1 | 30 | 30 | 0 32 57 | 30 |
| 40 | 1 22 30 | 40 | 40 | 0 36 35 | 40 |
| 50 | 1 20 50 | 50 | 50 | 0 40 9 | 50 |
| 3 0 | 1 19 0 | 15 0 | 9 0 | 0 43 38 | 21 0 |
| 10 | 1 17 1 | 10 | 10 | 0 47 3 | 10 |
| 20 | 1 14 54 | 20 | 20 | 0 50 22 | 20 |
| 30 | 1 12 38 | 30 | 30 | 0 53 35 | 30 |
| 40 | 1 10 13 | 40 | 40 | 0 56 42 | 40 |
| 50 | 1 7 41 | 50 | 50 | 0 59 42 | 50 |
| 4 0 | 1 5 1 | 16 0 | 10 0 | 1 2 36 | 22 0 |
| 10 | 1 2 13 | 10 | 10 | 1 5 22 | 10 |
| 20 | 0 59 19 | 20 | 20 | 1 8 2 | 20 |
| 30 | 0 56 17 | 30 | 30 | 1 10 33 | 30 |
| 40 | 0 53 9 | 40 | 40 | 1 12 56 | 40 |
| 50 | 0 49 55 | 50 | 50 | 1 15 11 | 50 |
| 5 0 | 0 46 36 | 17 0 | 11 0 | 1 17 18 | 23 0 |
| 10 | 0 43 11 | 10 | 10 | 1 19 15 | 10 |
| 20 | 0 39 41 | 20 | 20 | 1 21 4 | 20 |
| 30 | 0 36 7 | 30 | 30 | 1 22 43 | 30 |
| 40 | 0 32 28 | 40 | 40 | 1 24 13 | 40 |
| 50 | 0 28 46 | 50 | 50 | 1 25 33 | 50 |
| 6 0 | − 0 25 0 + | 18 0 | 12 0 | + 1 26 43 − | 24 0 |

| | | | |
|---|---|---|---|
| 0 | 0 | | |
| 0 | 10 | | |
| 0 | 20 | | |
| 0 | 30 | 2 | |
| 0 | 40 | 2 | |
| 0 | 50 | 2 | |
| 1 | 0 | 2 | |
| 1 | 10 | 1 | 50 |
| 1 | 20 | 1 | 40 |
| 1 | 30 | 1 | 30 |

The Correction

## TABLE II.

Containing the *Second* Correction. (*always to be added.*)

*Arguments:*—Sidereal Time and Altitude.

| Sidereal Time. | Altitude. 35° | 40° | 45° | 50° | 55° | 60° | 65° | 70° | Sidereal Time. |
|---|---|---|---|---|---|---|---|---|---|
| h m | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | h m |
| 0 0 | 0 4 | 0 5 | 0 5 | 0 6 | 0 8 | 0 9 | 0 12 | 0 15 | 12 0 |
| 30 | 0 1 | 0 1 | 0 2 | 0 2 | 0 2 | 0 3 | 0 3 | 0 4 | 30 |
| 1 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 13 0 |
| 30 | 0 1 | 0 1 | 0 1 | 0 1 | 0 1 | 0 2 | 0 2 | 0 2 | 30 |
| 2 0 | 0 3 | 0 3 | 0 4 | 0 5 | 0 6 | 0 7 | 0 9 | 0 11 | 14 0 |
| 30 | 0 7 | 0 8 | 0 9 | 0 11 | 0 13 | 0 16 | 0 20 | 0 26 | 30 |
| 3 0 | 0 12 | 0 14 | 0 17 | 0 20 | 0 24 | 0 29 | 0 36 | 0 46 | 15 0 |
| 30 | 0 18 | 0 21 | 0 25 | 0 30 | 0 36 | 0 43 | 0 54 | 1 9 | 30 |
| 4 0 | 0 24 | 0 28 | 0 34 | 0 41 | 0 49 | 0 59 | 1 13 | 1 34 | 16 0 |
| 30 | 0 30 | 0 36 | 0 43 | 0 52 | 1 2 | 1 15 | 1 33 | 1 59 | 30 |
| 5 0 | 0 36 | 0 43 | 0 52 | 1 2 | 1 14 | 1 30 | 1 52 | 2 23 | 17 0 |
| 30 | 0 42 | 0 50 | 1 0 | 1 11 | 1 25 | 1 43 | 2 8 | 2 44 | 30 |
| 6 0 | 0 46 | 0 55 | 1 6 | 1 18 | 1 34 | 1 54 | 2 21 | 3 0 | 18 0 |
| 30 | 0 49 | 0 58 | 1 10 | 1 23 | 1 39 | 2 0 | 2 29 | 3 11 | 30 |
| 7 0 | 0 50 | 1 0 | 1 11 | 1 25 | 1 41 | 2 3 | 2 32 | 3 15 | 19 0 |
| 30 | 0 49 | 0 59 | 1 10 | 1 23 | 1 40 | 2 2 | 2 31 | 3 13 | 30 |
| 8 0 | 0 47 | 0 56 | 1 7 | 1 19 | 1 36 | 1 56 | 2 24 | 3 4 | 20 0 |
| 30 | 0 43 | 0 52 | 1 2 | 1 13 | 1 28 | 1 47 | 2 12 | 2 49 | 30 |
| 9 0 | 0 38 | 0 46 | 0 54 | 1 5 | 1 18 | 1 34 | 1 57 | 2 30 | 21 0 |
| 30 | 0 32 | 0 39 | 0 46 | 0 55 | 1 6 | 1 20 | 1 39 | 2 6 | 30 |
| 10 0 | 0 26 | 0 31 | 0 37 | 0 44 | 0 53 | 1 4 | 1 19 | 1 41 | 22 0 |
| 30 | 0 19 | 0 23 | 0 28 | 0 33 | 0 39 | 0 48 | 0 59 | 1 16 | 30 |
| 11 0 | 0 13 | 0 16 | 0 19 | 0 23 | 0 27 | 0 33 | 0 41 | 0 52 | 23 0 |
| 30 | 0 8 | 0 10 | 0 11 | 0 14 | 0 16 | 0 20 | 0 24 | 0 31 | 30 |
| 12 0 | 0 4 | 0 5 | 0 5 | 0 6 | 0 8 | 0 9 | 0 12 | 0 15 | 24 0 |

## TABLE III. (*for* 1845.)

Containing the *Third* Correction. (*always to be added.*)

*Arguments:*—Sidereal Time and Date.

| Sidereal Time. | July 1. | Aug. 1. | Sept. 1. | Oct. 1. | Nov. 1. | Dec. 1. | Dec. 31. |
|---|---|---|---|---|---|---|---|
| h | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ | ′ ″ |
| 0 | 0 6 | 0 13 | 0 23 | 0 34 | 0 45 | 0 53 | 0 56 |
| 2 | 0 11 | 0 12 | 0 18 | 0 27 | 0 38 | 0 49 | 0 56 |
| 4 | 0 28 | 0 24 | 0 24 | 0 29 | 0 37 | 0 47 | 0 57 |
| 6 | 0 54 | 0 45 | 0 40 | 0 39 | 0 42 | 0 50 | 0 59 |
| 8 | 1 22 | 1 11 | 1 1 | 0 55 | 0 52 | 0 54 | 1 1 |
| 10 | 1 43 | 1 33 | 1 22 | 1 12 | 1 4 | 1 1 | 1 3 |
| 12 | 1 54 | 1 47 | 1 37 | 1 26 | 1 15 | 1 7 | 1 4 |
| 14 | 1 49 | 1 48 | 1 42 | 1 33 | 1 22 | 1 11 | 1 4 |
| 16 | 1 32 | 1 36 | 1 36 | 1 31 | 1 23 | 1 13 | 1 3 |
| 18 | 1 6 | 1 15 | 1 20 | 1 21 | 1 18 | 1 10 | 1 1 |
| 20 | 0 38 | 0 49 | 0 59 | 1 5 | 1 8 | 1 6 | 0 59 |
| 22 | 0 17 | 0 27 | 0 38 | 0 48 | 0 56 | 0 59 | 0 57 |
| 24 | 0 6 | 0 13 | 0 23 | 0 34 | 0 45 | 0 53 | 0 56 |

## TABLE

For converting INTERVALS of MEAN SOLAR Time into Equivalent INTERVALS of SIDEREAL Time.

| HOURS. | | MINUTES. | | | | SECONDS. | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hours of Mean Time. | Equivalents in Sidereal Time. | Minutes of Mean Time. | Equivalents in Sidereal Time. | Minutes of Mean Time. | Equivalents in Sidereal Time. | Seconds of Mean Time. | Equivalents in Sidereal Time. | Seconds of Mean Time. | Equivalents in Sidereal Time. |
| | h m s | | m s | | m s | | s | | s |
| 1 | 1 0 9·8565 | 1 | 1 0·1643 | 31 | 31 5·0925 | 1 | 1·0027 | 31 | 31·0849 |
| 2 | 2 0 19·7130 | 2 | 2 0·3286 | 32 | 32 5·2568 | 2 | 2·0055 | 32 | 32·0876 |
| 3 | 3 0 29·5694 | 3 | 3 0·4928 | 33 | 33 5·4211 | 3 | 3·0082 | 33 | 33·0904 |
| 4 | 4 0 39·4259 | 4 | 4 0·6571 | 34 | 34 5·5853 | 4 | 4·0110 | 34 | 34·0931 |
| 5 | 5 0 49·2824 | 5 | 5 0·8214 | 35 | 35 5·7496 | 5 | 5·0137 | 35 | 35·0958 |
| 6 | 6 0 59·1388 | 6 | 6 0·9857 | 36 | 36 5·9139 | 6 | 6·0164 | 36 | 36·0986 |
| 7 | 7 1 8·9953 | 7 | 7 1·1499 | 37 | 37 6·0782 | 7 | 7·0192 | 37 | 37·1013 |
| 8 | 8 1 18·8518 | 8 | 8 1·3142 | 38 | 38 6·2424 | 8 | 8·0219 | 38 | 38·1040 |
| 9 | 9 1 28·7083 | 9 | 9 1·4785 | 39 | 39 6·4067 | 9 | 9·0246 | 39 | 39·1068 |
| 10 | 10 1 38·5647 | 10 | 10 1·6428 | 40 | 40 6·5710 | 10 | 10·0274 | 40 | 40·1095 |
| 11 | 11 1 48·4212 | 11 | 11 1·8070 | 41 | 41 6·7353 | 11 | 11·0301 | 41 | 41·1123 |
| 12 | 12 1 58·2777 | 12 | 12 1·9713 | 42 | 42 6·8995 | 12 | 12·0329 | 42 | 42·1150 |
| 13 | 13 2 8·1342 | 13 | 13 2·1356 | 43 | 43 7·0638 | 13 | 13·0356 | 43 | 43·1177 |
| 14 | 14 2 17·9906 | 14 | 14 2 2998 | 44 | 44 7·2281 | 14 | 14·0383 | 44 | 44·1205 |
| 15 | 15 2 27·8471 | 15 | 15 2·4641 | 45 | 45 7·3924 | 15 | 15·0411 | 45 | 45·1232 |
| 16 | 16 2 37·7036 | 16 | 16 2·6284 | 46 | 46 7·5566 | 16 | 16·0438 | 46 | 46·1259 |
| 17 | 17 2 47·5600 | 17 | 17 2·7927 | 47 | 47 7·7209 | 17 | 17·0465 | 47 | 47·1287 |
| 18 | 18 2 57·4165 | 18 | 18 2·9569 | 48 | 48 7·8852 | 18 | 18·0493 | 48 | 48·1314 |
| 19 | 19 3 7·2730 | 19 | 19 3·1212 | 49 | 49 8·0495 | 19 | 19·0520 | 49 | 49·1342 |
| 20 | 20 3 17·1295 | 20 | 20 3·2855 | 50 | 50 8·2137 | 20 | 20·0548 | 50 | 50·1369 |
| 21 | 21 3 26·9859 | 21 | 21 3·4498 | 51 | 51 8·3780 | 21 | 21·0575 | 51 | 51·1396 |
| 22 | 22 3 36·8424 | 22 | 22 3·6140 | 52 | 52 8·5423 | 22 | 22·0602 | 52 | 52·1424 |
| 23 | 23 3 46·6989 | 23 | 23 3·7783 | 53 | 53 8·7066 | 23 | 23·0630 | 53 | 53·1451 |
| 24 | 24 3 56·5554 | 24 | 24 3·9426 | 54 | 54 8·8708 | 24 | 24·0657 | 54 | 54·1479 |
| | | 25 | 25 4·1069 | 55 | 55 9·0351 | 25 | 25·0685 | 55 | 55·1506 |
| | | 26 | 26 4·2711 | 56 | 56 9·1994 | 26 | 26·0712 | 56 | 56·1533 |
| | | 27 | 27 4·4354 | 57 | 57 9·3637 | 27 | 27·0739 | 57 | 57·1561 |
| | | 28 | 28 4·5997 | 58 | 58 9·5279 | 28 | 28·0767 | 58 | 58·1588 |
| | | 29 | 29 4·7640 | 59 | 59 9·6922 | 29 | 29·0794 | 59 | 59·1615 |
| | | 30 | 30 4·9282 | 60 | 60 9·8565 | 30 | 30·0821 | 60 | 60·1643 |

## TABLE

**For converting Intervals of Mean Solar Time into Equivalent Intervals of Sidereal Time.**

### FRACTIONS OF A SECOND.

| Seconds of Mean Time. | Equivalents in Sidereal Time. | Seconds of Mean Time. | Equivalents in Sidereal Time. | Seconds of Mean Time. | Equivalents in Sidereal Time. |
|---|---|---|---|---|---|
| | s | | s | | s |
| 0·01 | 0·01003 | 0·34 | 0·34093 | 0·67 | 0·67183 |
| 0·02 | 0·02006 | 0·35 | 0·35096 | 0·68 | 0·68186 |
| 0·03 | 0·03008 | 0·36 | 0·36099 | 0·69 | 0·69189 |
| 0·04 | 0·04011 | 0·37 | 0·37101 | 0·70 | 0·70192 |
| 0·05 | 0·05014 | 0·38 | 0·38104 | 0·71 | 0·71194 |
| 0·06 | 0·06016 | 0·39 | 0·39107 | 0·72 | 0·72197 |
| 0·07 | 0·07019 | 0·40 | 0·40110 | 0·73 | 0·73200 |
| 0·08 | 0·08022 | 0·41 | 0·41112 | 0·74 | 0·74203 |
| 0·09 | 0·09025 | 0·42 | 0·42115 | 0·75 | 0·75205 |
| 0·10 | 0·10027 | 0·43 | 0·43118 | 0·76 | 0·76208 |
| 0·11 | 0·11030 | 0·44 | 0·44120 | 0·77 | 0·77211 |
| 0·12 | 0·12033 | 0·45 | 0·45123 | 0·78 | 0·78214 |
| 0·13 | 0·13036 | 0·46 | 0·46126 | 0·79 | 0·79216 |
| 0·14 | 0·14038 | 0·47 | 0·47129 | 0·80 | 0·80219 |
| 0·15 | 0·15041 | 0·48 | 0·48131 | 0·81 | 0·81222 |
| 0·16 | 0·16044 | 0·49 | 0·49134 | 0·82 | 0·82225 |
| 0·17 | 0·17047 | 0·50 | 0·50137 | 0·83 | 0·83227 |
| 0·18 | 0·18049 | 0·51 | 0·51140 | 0·84 | 0·84230 |
| 0·19 | 0·19052 | 0·52 | 0·52142 | 0·85 | 0·85233 |
| 0·20 | 0·20055 | 0·53 | 0·53145 | 0·86 | 0·86235 |
| 0·21 | 0·21057 | 0·54 | 0·54148 | 0·87 | 0·87238 |
| 0·22 | 0·22060 | 0·55 | 0·55151 | 0·88 | 0·88241 |
| 0·23 | 0·23063 | 0·56 | 0·56153 | 0·89 | 0·89244 |
| 0·24 | 0·24066 | 0·57 | 0·57156 | 0·90 | 0·90246 |
| 0·25 | 0·25068 | 0·58 | 0·58159 | 0·91 | 0·91249 |
| 0·26 | 0·26071 | 0·59 | 0·59162 | 0·92 | 0·92252 |
| 0·27 | 0·27074 | 0·60 | 0·60164 | 0·93 | 0·93255 |
| 0·28 | 0·28077 | 0·61 | 0·61167 | 0·94 | 0·94257 |
| 0·29 | 0·29079 | 0·62 | 0·62170 | 0·95 | 0·95260 |
| 0·30 | 0·30082 | 0·63 | 0·63173 | 0·96 | 0·96263 |
| 0·31 | 0·31085 | 0·64 | 0·64175 | 0·97 | 0·97266 |
| 0·32 | 0·32088 | 0·65 | 0·65178 | 0·98 | 0·98268 |
| 0·33 | 0·33090 | 0·66 | 0·66181 | 0·99 | 0·99271 |

This Table is useful for the conversion of Mean Solar into Sidereal Time.

Sidereal Time *required* = Sidereal Time at the *preceding* Mean Noon + the Equivalent to the *given* Mean Time.

Example.—To convert $2^h\ 22^m\ 25{\cdot}62$ Mean Time at Greenwich, Jan. 2, 1845, into Sidereal Time.

| | | |
|---|---|---|
| Sidereal Time at the *preceding* Mean Noon, viz. January 2 | | $18^h\ 47^m\ 55{\cdot}42^s$ |
| For Mean Intervals. | $2^h\ 0^m\ 0^s$ | 2 0 19·71 |
| | 22 0 | 22 3·61 |
| | 25 | 25·07 |
| | 0·62 | 0·62 |
| The Table gives the Equivalent Sidereal Intervals, | | |
| The Sum is the Sidereal Time required, | | 21 10 44·43 |

## TABLE

For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS MEAN SOLAR Time.

| HOURS. | | MINUTES. | | | | SECONDS. | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hours of Sidereal Time. | Equivalents in Mean Time. | Minutes of Sidereal Time. | Equivalents in Mean Time. | Minutes of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. | Equi Mean |
| | h m s | | m s | | m s | | s | | s |
| 1 | 0 59 50·1704 | 1 | 0 59·8362 | 31 | 30 54·9214 | 1 | 0·9973 | 31 | 30·9 |
| 2 | 1 59 40·3409 | 2 | 1 59·6723 | 32 | 31 54·7576 | 2 | 1·9945 | 32 | 31·9 |
| 3 | 2 59 30·5113 | 3 | 2 59·5085 | 33 | 32 54·5937 | 3 | 2·9918 | 33 | 32·9 |
| 4 | 3 59 20·6818 | 4 | 3 59·3447 | 34 | 33 54·4299 | 4 | 3·9891 | 34 | 33·9 |
| 5 | 4 59 10·8522 | 5 | 4 59·1809 | 35 | 34 54·2661 | 5 | 4·9864 | 35 | 34·9 |
| 6 | 5 59 1·0226 | 6 | 5 59·0170 | 36 | 35 54·1023 | 6 | 5·9836 | 36 | 35·9 |
| 7 | 6 58 51·1931 | 7 | 6 58·8532 | 37 | 36 53·9384 | 7 | 6·9809 | 37 | 36· |
| 8 | 7 58 41·3635 | 8 | 7 58·6894 | 38 | 37 53·7746 | 8 | 7·9782 | 38 | 37· |
| 9 | 8 58 31·5340 | 9 | 8 58·5256 | 39 | 38 53·6108 | 9 | 8·9754 | 39 | 38· |
| 10 | 9 58 21·7044 | 10 | 9 58·3617 | 40 | 39 53·4470 | 10 | 9·9727 | 40 | 39 |
| 11 | 10 58 11·8748 | 11 | 10 58·1979 | 41 | 40 53·2831 | 11 | 10·9700 | 41 | 40 |
| 12 | 11 58 2·0453 | 12 | 11 58·0341 | 42 | 41 53·1193 | 12 | 11·9672 | 42 | 41 |
| 13 | 12 57 52·2157 | 13 | 12 57·8703 | 43 | 42 52·9555 | 13 | 12·9645 | 43 | 4 |
| 14 | 13 57 42·3862 | 14 | 13 57·7064 | 44 | 43 52·7917 | 14 | 13·9618 | 44 | 4 |
| 15 | 14 57 32·5566 | 15 | 14 57·5426 | 45 | 44 52·6278 | 15 | 14·9591 | 45 | 4 |
| 16 | 15 57 22·7270 | 16 | 15 57·3788 | 46 | 45 52·4640 | 16 | 15·9563 | 46 | 4 |
| 17 | 16 57 12·8975 | 17 | 16 57·2150 | 47 | 46 52·3002 | 17 | 16·9536 | 47 | 4 |
| 18 | 17 57 3·0679 | 18 | 17 57·0511 | 48 | 47 52·1364 | 18 | 17·9509 | 48 | 4 |
| 19 | 18 56 53·2384 | 19 | 18 56·8873 | 49 | 48 51·9725 | 19 | 18·9481 | 49 | 4 |
| 20 | 19 56 43·4088 | 20 | 19 56·7235 | 50 | 49 51·8087 | 20 | 19·9454 | 50 | 4 |
| 21 | 20 56 33·5792 | 21 | 20 56·5597 | 51 | 50 51·6449 | 21 | 20·9427 | 51 | 5 |
| 22 | 21 56 23·7497 | 22 | 21 56·3958 | 52 | 51 51·4810 | 22 | 21·9399 | 52 | 5 |
| 23 | 22 56 13·9201 | 23 | 22 56·2320 | 53 | 52 51·3172 | 23 | 22·9372 | 53 | 5 |
| 24 | 23 56 4·0906 | 24 | 23 56·0682 | 54 | 53 51·1534 | 24 | 23·9345 | 54 | 5 |
| | | 25 | 24 55·9044 | 55 | 54 50·9896 | 25 | 24·9318 | 55 | 5 |
| | | 26 | 25 55·7405 | 56 | 55 50·8257 | 26 | 25·9290 | 56 | 5 |
| | | 27 | 26 55·5767 | 57 | 56 50·6619 | 27 | 26·9263 | 57 | 5 |
| | | 28 | 27 55·4129 | 58 | 57 50·4981 | 28 | 27·9236 | 58 | 5 |
| | | 29 | 28 55·2490 | 59 | 58 50·3343 | 29 | 28·9208 | 59 | 5 |
| | | 30 | 29 55·0852 | 60 | 59 50·1704 | 30 | 29·9181 | 60 | 5 |

## TABLE

For converting INTERVALS of SIDEREAL Time into Equivalent INTERVALS of MEAN SOLAR Time.

FRACTIONS OF A SECOND.

| Seconds of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. | Equivalents in Mean Time. | Seconds of Sidereal Time. | Equivalents in Mean Time. |
|---|---|---|---|---|---|
| | s | | s | | s |
| 0 ·01 | 0 ·00997 | 0 ·34 | 0 ·33907 | 0 ·67 | 0 ·66817 |
| 0 ·02 | 0 ·01995 | 0 ·35 | 0 ·34904 | 0 ·68 | 0 ·67814 |
| 0 ·03 | 0 ·02992 | 0 ·36 | 0 ·35902 | 0 ·69 | 0 ·68812 |
| 0 ·04 | 0 ·03989 | 0 ·37 | 0 ·36899 | 0 ·70 | 0 ·69809 |
| 0 ·05 | 0 ·04986 | 0 ·38 | 0 ·37896 | 0 ·71 | 0 ·70806 |
| 0 ·06 | 0 ·05984 | 0 ·39 | 0 ·38894 | 0 ·72 | 0 ·71803 |
| 0 ·07 | 0 ·06981 | 0 ·40 | 0 ·39891 | 0 ·73 | 0 ·72801 |
| 0 ·08 | 0 ·07978 | 0 ·41 | 0 ·40888 | 0 ·74 | 0 ·73798 |
| 0 ·09 | 0 ·08975 | 0 ·42 | 0 ·41885 | 0 ·75 | 0 ·74795 |
| 0 ·10 | 0 ·09973 | 0 ·43 | 0 ·42883 | 0 ·76 | 0 ·75793 |
| 0 ·11 | 0 ·10970 | 0 ·44 | 0 ·43880 | 0 ·77 | 0 ·76790 |
| 0 ·12 | 0 ·11967 | 0 ·45 | 0 ·44877 | 0 ·78 | 0 ·77787 |
| 0 ·13 | 0 ·12965 | 0 ·46 | 0 ·45874 | 0 ·79 | 0 ·78784 |
| 0 ·14 | 0 ·13962 | 0 ·47 | 0 ·46872 | 0 ·80 | 0 ·79782 |
| 0 ·15 | 0 ·14959 | 0 ·48 | 0 ·47869 | 0 ·81 | 0 ·80779 |
| 0 ·16 | 0 ·15956 | 0 ·49 | 0 ·48866 | 0 ·82 | 0 ·81776 |
| 0 ·17 | 0 ·16954 | 0 ·50 | 0 ·49864 | 0 ·83 | 0 ·82773 |
| 0 ·18 | 0 ·17951 | 0 ·51 | 0 ·50861 | 0 ·84 | 0 ·83771 |
| 0 ·19 | 0 ·18948 | 0 ·52 | 0 ·51858 | 0 ·85 | 0 ·84768 |
| 0 ·20 | 0 ·19945 | 0 ·53 | 0 ·52855 | 0 ·86 | 0 ·85765 |
| 0 ·21 | 0 ·20943 | 0 ·54 | 0 ·53853 | 0 ·87 | 0 ·86762 |
| 0 ·22 | 0 ·21940 | 0 ·55 | 0 ·54850 | 0 ·88 | 0 ·87760 |
| 0 ·23 | 0 ·22937 | 0 ·56 | 0 ·55847 | 0 ·89 | 0 ·88757 |
| 0 ·24 | 0 ·23934 | 0 ·57 | 0 ·56844 | 0 ·90 | 0 ·89754 |
| 0 ·25 | 0 ·24932 | 0 ·58 | 0 ·57842 | 0 ·91 | 0 ·90752 |
| 0 ·26 | 0 ·25929 | 0 ·59 | 0 ·58839 | 0 ·92 | 0 ·91749 |
| 0 ·27 | 0 ·26926 | 0 ·60 | 0 ·59836 | 0 ·93 | 0 ·92746 |
| 0 ·28 | 0 ·27924 | 0 ·61 | 0 ·60833 | 0 ·94 | 0 ·93743 |
| 0 ·29 | 0 ·28921 | 0 ·62 | 0 ·61831 | 0 ·95 | 0 ·94741 |
| 0 ·30 | 0 ·29918 | 0 ·63 | 0 ·62828 | 0 ·96 | 0 ·95738 |
| 0 ·31 | 0 ·30915 | 0 ·64 | 0 ·63825 | 0 ·97 | 0 ·96735 |
| 0 ·32 | 0 ·31913 | 0 ·65 | 0 ·64823 | 0 ·98 | 0 ·97732 |
| 0 ·33 | 0 ·32910 | 0 ·66 | 0 ·65820 | 0 ·99 | 0 ·98730 |

This TABLE is useful for the conversion of SIDEREAL into MEAN SOLAR Time.

Mean Solar Time *required* = Mean Time at the *preceding* Sidereal Noon + the Equivalent to the *given* Sidereal Time.

EXAMPLE.—To convert $21^h\ 10^m\ 44^s{\cdot}43$ Sidereal Time at Greenwich, Jan. 2, 1845, into Mean Time.

| | | | |
|---|---|---|---|
| Mean Time at the *preceding* Sidereal Noon, viz. - - - - - January | | | $1^d\ 5^h\ 15^m\ 9^s{\cdot}37$ |
| For Sidereal Intervals. | $21^h\ 0^m\ 0^s$ | The Table gives the Equivalent Mean Intervals, | $20\ 56\ 33{\cdot}58$ |
| | $10\ \ 0$ | | $9\ 58{\cdot}36$ |
| | $44$ | | $43{\cdot}88$ |
| | $0{\cdot}43$ | | $\cdot 43$ |
| The Sum is the Mean Time required, Jan. 2 | | | $2\ 22\ 25{\cdot}62$ |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

The Longitudes are reckoned from the Meridian of Greenwich.
*North* Latitudes and *West* Longitudes are indicated by the sign +:
*South* Latitudes and *East* Longitudes by the sign —.

| | | | |
|---|---|---|---|
| ABERDEEN - - - - | (Marischal College.) | | |
| | Lat. | + 57° 8′ 57″·8 | Mr. George Innes, |
| | Long. | + 0ʰ 8ᵐ 22ˢ·78 | *Ast. Nach.* vol. x. page 21 |
| ABO - - - - - - | Lat. | + 60° 26′ 57″ | *Argelander's Observations* page 21, and vol. ii. pages |
| | Long. | — 1ʰ 29ᵐ 8ˢ·8 | *Ast. Nach.* vol. ix. page 26 |
| ALTONA - - - - | (Prof. Schumacher.) | | |
| | Lat. | + 53° 32′ 45″ | *Gauss on the Latitudes of gen and Altona*, page 71. (Göttingen, |
| | Long. | — 0ʰ 39ᵐ 46ˢ·6 | *Ast. Nach.* vol. viii. page |
| ARMAGH - - - - | Lat. | + 54° 21′ 12″·7 | Communicated by the R |
| | Long. | + 0ʰ 26ᵐ 35ˢ·5 | Robinson. |
| BEDFORD - - - - | (Capt. Smyth, R.N.) | | |
| | Lat. | + 52° 8′ 27″·6 | *Mem. Ast. Soc.* vol. v. pag |
| | Long. | + 0ʰ 1ᵐ 51ˢ·97 | |
| BERLIN - - - - | Lat. | + 52° 31′ 13″·5 | *Berliner Astron. Jahrb* |
| | Long. | — 0ʰ 53ᵐ 35ˢ·5 | 1833, page 249. |
| ——— (*New Observ*ʸ) | Lat. | + 52° 30′ 16″·0 | *Berliner Astron. Jahrb* |
| | Long. | — 0ʰ 53ᵐ 35ˢ·3 | 1839, page 240. |
| BLACKHEATH - - - | (Hon. J. Wrottesley.) | | |
| | Lat. | + 51° 28′ 2″ | *Mem. of Royal Ast. Soc.* |
| | Long. | — 0ʰ 0ᵐ 2ˢ·7 | page 161. |
| BREMEN - - - - | Lat. | + 53° 4′ 36″ | *Ast. Nach.* vol. i. page 24 |
| | Long. | — 0ʰ 35ᵐ 15ˢ·9 | This is the mean of the given in *Ast. Nach.* vol. i. page 240; vol. 392; vol. v. page 247; vol. viii. pages 131 a |
| BRUSSELS - - - - | (Prof. Quetelet.) | | |
| | Lat. | + 50° 51′ 10″·7 | *Annuaire de l'observat* |
| | Long. | — 0ʰ 17ᵐ 29ˢ·0 | *Bruxelles, pour l'An* 1 pages 264 a |
| BUDA - - - - - - | (Ofen.) | | |
| | Lat. | + 47° 29′ 12″·2 | *Zeitschrift für Astronomie*, page 70; and *Mem. Ast. Soc.* vol. i. page |
| | Long. | — 1ʰ 16ᵐ 12ˢ·7 | *Zach's Correspond. Astron.* page 263; and *Zeitschrift für Astronomie*, page 507. |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

| | | |
|---|---|---|
| **Bushey Heath** - - | (Colonel Beaufoy.) | |
| | Lat. + 51° 37′ 44″·3 | *Mem. Ast. Soc.* vol. ii. page 129. |
| | Long. + 0ʰ 1ᵐ 20ˢ ·93 | |
| **Cambridge** - - - | Lat. + 52° 12′ 51″·8 | *Camb. Phil. Trans.* vol. v. p. 279. |
| | Long. — 0ʰ 0ᵐ 23ˢ ·54 | *Camb. Phil. Trans.* vol. iii. p. 168. |
| **Cape of Good Hope** - | Lat. — 33° 56′ 3″ | *Mem. Roy. Ast. Soc.* vol. vi. page 130. |
| | Long. — 1ʰ 13ᵐ 55ˢ ·0 | Communicated by Mr. Henderson. |
| **Christiana** - - - | Lat. + 59° 54′ 5″ | *Ast. Nach.* vol. vi. page 148. |
| | Long. — 0ʰ 42ᵐ 59ˢ ·8 | *Ast. Nach.* vol. v. page 382. |
| **Copenhagen** - - - | (University.) | |
| | Lat. + 55° 40′ 53″ | *Ast. Nach.* vol. v. page 366. |
| | Long. — 0ʰ 50ᵐ 19ˢ ·8 | *Ast. Nach.* vol. ix. page 164. |
| **Cracow** - - - - - | Lat. + 50° 3′ 49″·7 | *Ast. Nach.* vol. viii. page 176; and vol. x. page 228. |
| | Long. — 1ʰ 19ᵐ 52ˢ ·45 | *Ast. Nach.* vol. x. page 232. |
| **Dorpat** - - - - - | Lat. + 58° 22′ 47″ | *Struve's Astronom. Observations*, vol. vi. page 60. |
| | Long. — 1ʰ 46ᵐ 55ˢ | *Bessel's Tabulæ Regiomontanæ*, page 2. |
| **Dublin** - - - - - | Lat. + 53° 23′ 13″ | *Ast. Nach.* vol. x. page 274. |
| | Long. + 0ʰ 25ᵐ 22ˢ | |
| **Durham** - - - - - | Lat. + 54° 46′ 14″·9 | Communicated by Professor Chevallier. |
| | Long. + 0ʰ 6ᵐ 18ˢ | |
| **Edinburgh** - - - | Lat. + 55° 57′ 23″ ·2 | *Ast. Soc. Not.* vol. iii. page 201. |
| | Long. + 0ʰ 12ᵐ 43ˢ ·6 | *Mem. Ast. Soc.* vol. iv. page 568. |
| **Florence** - - - - | (St. Giovanni.) | |
| | Lat. + 43° 46′ 41″ ·4 | *Zach's Correspondance Astronomique*, vol. i. pages 1 to 14. |
| | Long. — 0ʰ 45ᵐ 3ˢ ·6 | |
| **Geneva** - - - - - | Lat. + 46° 11′ 59″·4 | *Mémoire sur une nouvelle détermination sur la Latitude de Genève.* By M. Gautier. (Genève, 1830.) |
| | Long. — 0ʰ 24ᵐ 37ˢ ·5 | *Ast. Nach.* vol. viii. page 260. |
| **Gotha** - - - - - | (Seeberg.) | |
| | Lat. + 50° 56′ 5″ | *Gauss on the Latitudes of Göttingen and Altona*, page 80. |
| | Long. — 0ʰ 42ᵐ 56ˢ ·4 | *Bessel's Tab. Reg.* page 2. |
| **Göttingen** - - - | Lat. + 51° 31′ 48″ | *Gauss on the Latitudes of Göttingen and Altona*, page 71. |
| | Long. — 0ʰ 39ᵐ 46ˢ ·5 | *Bessel's Tab. Reg.* page 2. |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

| | | |
|---|---|---|
| GREENWICH - - - | Lat. + 51° 28′ 39″·0 | *Mem. Ast. Soc.* vol. ii. pages 318 and 529. |
| | Long. $0^h$ $0^m$ $0^s$ | |
| KENSINGTON - - - | (Sir James South.) | |
| | Lat. + 51° 30′ 12″·7 | *Mem. Ast. Soc.* vol. v. page 370. |
| | Long. + $0^h$ $0^m$ $46^s$·78 | |
| KEW - - - - - - | Lat. + 51° 28′ 37″ | *Baily's Astron. Tables and Formulæ*, page 123. (London, 1827.) |
| | Long. + $0^h$ $1^m$ $3^s$ | |
| KÖNIGSBERG - - - | Lat. + 54° 42′ 50″ | *Introduction to Bessel's Astron. Observations for* 1821. |
| | Long. — $1^h$ $22^m$ $0^s$·5 | *Bessel's Tab. Reg.* page 2. |
| KREMSMUNSTER - - | Lat. + 48° 3′ 29″ | *Ast. Nach.* vol. vi. page 67. |
| | Long. — $0^h$ $56^m$ $32^s$·3 | *Ast. Nach.* vol. iii. page 121. |
| MADRAS - - - - | Lat. + 13° 4′ 9″·2 | *Taylor's Result of Ast. Obs. at the Observatory*, vol. i. 1831, pages 94 & 95. (Madras, 1832.) |
| | Long. — $5^h$ $21^m$ $3^s$·77 | |
| MAKERSTOUN - - - | (Sir T. M. Brisbane.) | |
| | Lat. + 55° 34′ 45″ | *Ast. Nach.* vol. x. page 214. |
| | Long. + $0^h$ $10^m$ $4^s$·0 | |
| MANHEIM - - - - | Lat. + 49° 29′ 14″ | *Zach's Correspondance Astronomique*, vol. i. page 193. |
| | Long. — $0^h$ $33^m$ $51^s$·4 | *Ast. Nach.* vol. ii. page 398. |
| MARSEILLES - - - | Lat. + 43° 17′ 50″·1 | *Zach's Attraction des Montagnes*, vol. ii. page 591. |
| | Long. — $0^h$ $21^m$ $29^s$·0 | *Ast. Nach.* vol. iv. page 36. |
| MILAN - - - - - | (Brera.) | |
| | Lat. + 45° 28′ 1″ | *Zach's Correspondance Astronomique*, vol. v. page 300. |
| | Long. — $0^h$ $36^m$ $47^s$·2 | *Ast. Nach.* vol. ix. page 312. |
| MODENA - - - - | Lat. + 44° 38′ 53″ | *Effem. Astron. di Milano* for 1829, pages 94 and 60. |
| | Long. — $0^h$ $43^m$ $43^s$·2 | |
| MUNICH - - - - | (Bogenhausen.) | |
| | Lat. + 48° 8′ 45″ | *Ast. Nach.* vol. i. page 221. |
| | Long. — $0^h$ $46^m$ $26^s$·5 | *Ast. Nach.* vol. viii. page 148. |
| NAPLES - - - - | (Capo di Monte.) | |
| | Lat. + 40° 51′ 46″·6 | *Ast. Nach.* vol. v. page 294. |
| | Long. — $0^h$ $57^m$ $0^s$·3 | Communicated by M. Cacciatore to Captain B. Hall, R.N. |
| NICOLÆFF - - - - | Lat. + 46° 58′ 20″·6 | *Ast. Nach.* vol. vii. page 261. |
| | Long. — $2^h$ $7^m$ $55^s$·1 | *Ast. Nach.* vol. vii. page 306. |

## LATITUDES AND LONGITUDES OF THE PRINCIPAL OBSERVATORIES.

| | | |
|---|---|---|
| ORMSKIRK - - - - | (Rev. W. R. Dawes.)<br>Lat. + 53° 34′ 18″<br>Long. + 0ʰ 11ᵐ 36ˢ | *Mem. Ast. Soc.* vol. v. page 370. |
| OXFORD - - - - | Lat. + 51° 45′ 40″<br>Long. + 0ʰ 5ᵐ 1ˢ·5 | *Requisite Tables*, 3rd edit. (from Trig. Survey.) |
| PADUA - - - - - | Lat. + 45° 24′ 2″<br>Long. — 0ʰ 47ᵐ 29ˢ·2 | *Ast. Nach.* vol. v. page 411.<br>*Ast. Nach.* vol. iv. page 347. |
| PALERMO - - - | Lat. + 38° 6′ 44″<br>Long. — 0ʰ 53ᵐ 25ˢ·6 | *Cacciatore*, in Books 7 and 8 of *Palermo Observations.*<br>Communicated by M. Cacciatore to Captain B. Hall, R.N. |
| PARAMATTA - - - | Lat. — 33° 48′ 49″·8<br>Long. — 10ʰ 4ᵐ 6ˢ·25 | *Phil. Trans.* for 1829. Part iii. pages 16 and 29. |
| PARIS - - - - - | Lat. + 48° 50′ 13″<br>Long. — 0ʰ 9ᵐ 21ˢ·5 | *Conn. des Tems* for 1835, page 356.<br>*Phil. Trans.* for 1827. (*Henderson on the Longitudes of Greenwich and Paris.*) |
| PETERSBURGH - - - | Lat. + 59° 56′ 31″<br>Long. — 2ʰ 1ᵐ 15ˢ·8 | *Conn. des Tems* for 1836, page 340.<br>*Ast. Nach.* vol. viii. page 360. |
| PORTSMOUTH - - - | Lat. + 50° 48′ 3″<br>Long. + 0ʰ 4ᵐ 23ˢ·9 | *Requisite Tables*, 3rd edit. (from Trig. Survey.) |
| PRAGUE - - - - | Lat. + 50° 5′ 18″·5<br>Long. — 0ʰ 57ᵐ 41ˢ·9 | *Ast. Nach.* vol. viii. page 198.<br>*Ast. Nach.* vol. iii. page 264. |
| REGENT'S PARK - - | (George Bishop, Esq.)<br>Lat. + 51° 31′ 30″<br>Long. + 0ʰ 0ᵐ 37ˢ·1 | Communicated by the Rev. W. R. Dawes. |
| ROME - - - - - | (Roman College.)<br>Lat. + 41° 53′ 52″<br>Long. — 0ʰ 49ᵐ 54ˢ·7 | *Conn. des Tems* for 1822, page 312.<br>*Ast. Nach.* vol. viii. page 88. |
| ST. FERNANDO, near CADIZ - - - | Lat. + 36° 27′ 45″ or 42″<br>Long. + 0ʰ 24ᵐ 49ˢ·1 | *Zach's Correspondance Astronomique*, vol. xiv. pages 240 to 243.<br>*Ast. Nach.* vol. ix. page 358. |
| ST. HELENA - - - | Lat. — 15° 55′ 26″<br>Long. + 0ʰ 22ᵐ 50ˢ | Communicated by Lieut. Johnson. |
| SLOUGH - - - - | (Sir J. F. W. Herschel.)<br>Lat. + 51° 30′ 20″<br>Long. + 0ʰ 2ᵐ 24ˢ | *Baily's Astron. Tables and Formulæ*, p. 124. (London, 1827.) |

## LATITUDES AND LONGITUDES OF THE PRINCIPA OBSERVATORIES.

| | | |
|---|---|---|
| SOUTH KILWORTH - | (Rev. W. Pearson.) | |
| | Lat. + 52° 25′ 51″ | *Pearson's Astronomy*, vol |
| | Long. + 0ʰ 4ᵐ 26ˢ·0 | 707. |
| SPEYER - - - - | Lat. + 49° 18′ 55″·2 | *Schwerd's Observations* page xx. |
| | Long. — 0ʰ 33ᵐ 46ˢ·5 | *Ast. Nach.* vol. iii. page |
| STRASBURGH - - - | Lat. + 48° 34′ 40″ | *Comptes Rendus Hebdo* |
| | Long. — 0ʰ 31ᵐ 0ˢ·8 | *des Séances de L'Acad Sciences.* 2nd Semestre. 1836, |
| TURIN - - - - | (New Observatory.) | |
| | Lat. + 45° 4′ 6″ | Communicated by M. |
| | Long. — 0ʰ 30ᵐ 48ˢ·4 | Captain B. Hall, R.N |
| VERONA - - - - | (Lyceum.) | |
| | Lat. + 45° 26′ | (Approximate.) |
| | Long. — 0ʰ 44ᵐ 0ˢ·1 | *Effem. Astron. di Milano* page 60. |
| VIENNA - - - - | Lat. + 48° 12′ 35″ | *Littrow's Astron. Obs* Part viii. page 124. |
| | Long. — 1ʰ 5ᵐ 31ˢ·9 | *Ast. Nach.* vol. iii. page |
| VIVIERS - - - - | (M. Flaugergues.) | |
| | Lat. + 44° 29′ 11″ | *Zach's Correspondance mique*, vol. ii. page 13 |
| | Long. — 0ʰ 18ᵐ 44ˢ·8 | *Ast. Nach.* vol. v. page |
| WILNA - - - - | Lat. + 54° 41′ 0″ | *Ast. Nach.* vol. iv. page |
| | Long. — 1ʰ 41ᵐ 11ˢ·9 | *Ast. Nach.* vol. viii. pag |

# EXPLANATION OF THE ARTICLES

CONTAINED IN

# THE NAUTICAL ALMANAC AND ASTRONOMICAL EPHEMERIS

## FOR THE YEAR 1845.

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All the articles of the Ephemeris have been computed for Greenwich MEAN solar time; and where they are given for apparent solar or sidereal time, it has been briefly for the convenience of astronomers. A *day* is the interval of time between the departure of any meridian from a heavenly body and its succeeding return to it, and derives its name from the body with which the motion of the meridian is compared. The interval between the departure and return of a meridian to the Sun is called a *solar day*; in the case of the Moon, the interval is called a *lunar* day; and in that of a Star, a *sidereal* day. The revolution of the Earth on its axis is always performed in the same time; and if the heavenly bodies preserved the same positions with respect to each other, the intervals between the departure and return of a meridian to each would be the same, and all days, consequently, of equal length. The Sun, (or, more strictly, the Earth in its orbit,) the Moon, and the Planets are, however, in continual motion; and with velocities not only different from each other, but varying in each particular body: the length of a day, as determined by any of these bodies, is therefore a variable quantity.

Astronomers, with the view of obtaining a convenient and uniform measure of time, have recourse to a *mean solar day*, the length of which is equal to the mean or average of all the apparent solar days in a year. An imaginary Sun, called the *mean* Sun, is conceived to move uniformly in the Equator with the real Sun's *mean* motion in Right Ascension, and the interval between the departure of any meridian from the *mean* Sun and its succeeding return to it is the duration of the mean solar day. Clocks and Chronometers are adjusted to mean solar time; so that a complete revolution (through 24 hours) of the hour hand of one of these machines should be performed in exactly the same interval as the revolution of the Earth on its axis with respect to the mean Sun. If the mean Sun could be observed on the meridian at the instant that the clock or chronometer indicated $0^h\ 0^m\ 0^s$, it would again be observed there when the hour hand returned to the same position. As the time deduced from observations of the *true* Sun is called *true* or *apparent* time, so the time deduced from the *mean* Sun, or indicated by the machines which represent its motion, is denominated *mean* time.

We cannot *immediately* obtain mean time from observation; but, from an observation of the true Sun, with the aid of the equation of time, which is the angular distance in time between the mean and the true Sun, we may readily deduce it. Suppose the true Sun to be observed on the meridian of Greenwich, Jan. 1, 1845; it would then be apparent noon at that meridian; the equation of time at this instant is $3^m\ 56^s{\cdot}93$, and, by the precept at the head of the column, it is "*to be added to*

*apparent time*"; hence it appears that the corresponding mean time is $0^h\ 3^m\ 56^s{\cdot}9$, that the mean Sun had passed the meridian previously to the true Sun, and that the instant of observation the mean time clock or chronometer ought to indicate this time.

A mere inspection of the columns of the Ephemeris is, of itself, sufficient to show that the quantities are continually varying, and that some reducton is necessary where data are to be obtained for any time differing from that for which the quantities are registered. Take, for instance, the Sun's Right Ascension on Page II. of the month of January; on January 1, it is $18^h\ 47^m\ 55^s{\cdot}71$; on January 2, it is $18^h\ 52^m\ 20^s{\cdot}45$; in the course of 24 mean hours it has therefore increased by $4^m\ 24^s{\cdot}74$. If, then, the Right Ascension were required for any time between the Mean Noons of January 1 and 2, as at $6^h$ from Mean Noon of January 1, it would be necessary to increase the Right Ascension on January 1, by the proportional part of the daily increase due for the $6^h$, viz. by one-fourth part, or $1^m\ 6^s{\cdot}19$. This would in all cases be required, even under the meridian of Greenwich, for which the quantities have been specially computed. Let a person be now supposed to be under a meridian 15° West of Greenwich. The positions of the heavenly bodies, as referred to the centre of the Earth, are independent of meridians, and are the same for all places at the same absolute instant; but the relative times at Greenwich and the assumed meridian would be different. If it were $1^h$ from mean noon at the one place, it could not be $1^h$ from mean noon at the other; for when we speak of time, we mean, as regards a visible phenomenon, the distance of the Sun *westward* from a given meridian, and at the same absolute moment of time the Sun *cannot* be at the same distance (*reckoning westward*) from two meridians which are 15° distant from each other. Before we can make use of the Ephemeris, it is therefore necessary to ascertain, in every instance, the distance of the Sun (*in time*) from the meridian of Greenwich, or what is commonly called the corresponding Greenwich time; and this is evidently equal to the given time under the assumed meridian, *increased* or *diminished* by the difference (*in time*) of the two meridians, according as the assumed meridian is to the *Westward* or *Eastward* of Greenwich. In a mean Solar day, or 24 mean Solar hours, the Earth, by its rotation from West to East, has caused every meridian in succession from East to West to pass the mean Sun; and since the motion is uniform, all the meridians distant from each other 15° will have passed the mean Sun, at intervals of one mean hour; the meridian to the Eastward passing first, or being, as compared with the Sun, always one mean hour in advance of the Westerly meridian. When it is $6^h$ from mean noon at a place 15° West of Greenwich, it is therefore $7^h$ from mean noon at Greenwich; and it is for this Greenwich time that we must deduce the quantities required from the Ephemeris.

If a chronometer adjusted to Greenwich mean time be at hand, the Greenwich time may be immediately obtained by applying a correction, deduced from the daily rate and interval elapsed, and this will be preferable in all cases for obtaining the requisite data from the Ephemeris.

The day adopted in this Ephemeris is supposed to begin at mean noon, or at the instant when a clock or chronometer shows $0^h\ 0^m\ 0^s$, Greenwich mean time, and is continued through the 24 hours, to the following mean noon, when another day begins. It may therefore be called the *Mean Astronomical Day*, although, in practice, astronomers begin the day at the moment the true Sun's centre is on their meridian.

In the civil, or common, method of reckoning, the day is supposed to commence at the *preceding* midnight, and to be counted only to 12 hours or noon, when the 12 hours are reckoned over again to the next midnight. The civil reckoning is therefore always $12^h$ in advance of the astronomical reckoning: and the civil time corresponding

to any given astronomical time is hence readily found by *adding* $12^h$ to the latter: thus, if to Jan. $1^d$ $7^h$ $49^m$, astronomical time, be added $12^h$, the sum will be Jan. $1^d$ $19^h$ $49^m$, or Jan. $1^d$ $7^h$ $49^m$ P.M. civil time. Again, to Jan. $1^d$ $15^h$ $35^m$, astronomical time, add $12^h$; the sum will be Jan. $2^d$ $3^h$ $35^m$ A.M. civil time. It thus appears that, from noon to midnight, the day of the month and the hour of the day are the same in both methods; but from midnight to noon they differ; for at midnight, when a new civil day commences, the astronomical day wants $12^h$ of its completion.

The conversion of civil into astronomical time is on the contrary performed by *diminishing* the former by $12^h$. Thus, January $2^d$ $3^h$ $35^m$ A.M. civil time, diminished by $12^h$, leaves January $1^d$ $15^h$ $35^m$, for the corresponding astronomical time.

To each month there are devoted twenty-two pages, distinguished by the Roman numerals I. to XXII.

For convenience of interpolation, the quantities that follow next in order of succession have been added at the bottom of each page. Thus the quantities opposite to February 1 will be found inserted also opposite to January 32, the number of the days in each month having been intentionally increased for such purpose.

### Page I. of each Month.

The contents of this page are adapted to *Apparent Noon*, or the instant when the Sun's centre is on the meridian of Greenwich. The *Sun's Right Ascension*, here given, is *affected with Aberration*, and reckoned from the true Equinox; it is therefore the Sidereal Time at Apparent Noon, or the time which ought to be shown by a Sidereal Clock, at that instant. The *Sun's Apparent Declination* is the angular distance of the Sun from the Equator, measured on the meridian.

The columns entitled "Diff. for 1 hour" are intended to facilitate the reduction of the quantities from Apparent Noon to any other time. The values of these quantities for any proposed *mean* time will, however, be more accurately ascertained by means of the numbers on page II. from which, indeed, they have been derived.

The *Sidereal Time of the Sun's Semidiameter passing the Meridian* is useful for reducing a transit observation of either limb of the Sun, when one only has been observed, to the transit of the centre.

The *Equation of Time* is the difference between Apparent and Mean Time, and therefore serves for the conversion of either time into the other. The numbers here given, show, for Greenwich Apparent Noon, the distance of the mean Sun from the meridian, or the portion of time to be *added to*, or *subtracted from*, (according to the precept at the head of the column,) Greenwich Apparent Noon to obtain the corresponding Mean Time at the same meridian, or the time which ought to be shown by the Mean Time Clock. It differs from the Equation of Time on page II., because the equation itself varies in the interval between Apparent and Mean Noon.

Where time is deduced from observations of the Sun, the *immediate* result is *apparent* time; to convert it into mean time, the equation of time is necessary, and it is to be applied to apparent time, according to the precept at the head of the column.

Thus, suppose the apparent time deduced from an observation of the Sun on January 16, 1845, in longitude 45° or $3^h$ east of Greenwich, to be $6^h$, and it were required to convert it into mean time: Subtracting the difference of longitude $3^h$ from the apparent time at the place, we have $3^h$ for the corresponding apparent time at Greenwich. The difference of the equation for 1 hour is $0^m.831$, which multiplied by

3, gives $2^s{\cdot}493$ for the variation in 3 hours, and this being added (because the equation is increasing) to $10^m\ 9^s{\cdot}65$, the equation of time at apparent noon, the result is $10^m\ 12^s{\cdot}14$, to be added (according to the precept at the head of the column) to the given apparent time $6^h$, whence we obtain $6^h\ 10^m\ 12^s{\cdot}14$, for the mean time required.

At page I. of the month of April, we observe, at the head of the column $\frac{added\ to}{subt.\ from}$, which signifies that a change of precept occurs in the course of the month; and between the equations opposite to the 15th and 16th days of the month, a black line, indicating that the change occurs between the Apparent Noons of those days. The upper precept applies to all the quantities above the black line; and the lower precept to all the quantities below it: that is, in the instance referred to, the Equation of Time is to be *added to* Apparent Time from the 1st of April to the instant at which the equation becomes $0^m\ 0^s$, which happens between the noons of the 15th and 16th days of the month: but after that instant the equation is to be *subtracted* from Apparent to obtain Mean Time.

## Page II. of each Month.

The *Sun's Apparent Right Ascension* and *Declination* at mean noon have been deduced from its *Apparent* longitude and latitude given at page III., and the *apparent* obliquity of the ecliptic at page 266. They denote the *apparent* position of the true Sun with reference to the equator, and the true equinox, at the instant the Greenwich mean time clock, or chronometer, indicates $0^h\ 0^m\ 0^s$, or when the hour angle of the true Sun is equal to the equation of time.

To find the Right Ascension and Declination for any other mean time and place, as at $9^h\ 20^m$ A.M. March 2, 1845, in longitude 98°, or $6^h\ 32^m$, West of Greenwich. The astronomical time, corresponding to $9^h\ 20^m$ A.M. March 2, is $21^h\ 20^m$ from the noon of March 1, or March $1^d\ 21^h\ 20^m$, agreeably to what has been said before. The longitude, being West of Greenwich, must be added to March $1^d\ 21^h\ 20^m$, and the result, March $2^d\ 3^h\ 52^m$, is the corresponding Greenwich mean time, for which the Right Ascension and Declination are to be found. The difference between the Right Ascensions on March 2 and March 3 is $3^m\ 43^s{\cdot}84$, that is, in the 24 mean hours succeeding the Mean Noon of March 2, the Right Ascension has increased by this quantity; it will, therefore, have received a proportional part of the increase in $3^h\ 52^m$, and the amount is readily obtained by this proportion, $24^h : 3^m\ 43^s{\cdot}84 :: 3^h\ 52^m : 36^s{\cdot}06$; which, being *added* to $22^h\ 52^m\ 54^s{\cdot}73$, the Right Ascension at Mean Noon of March 2, gives $22^h\ 53^m\ 30^s{\cdot}79$, for the Right Ascension at the time proposed.

In a similar manner the Declinations indicate a decrease of $22'\ 58''{\cdot}0$ in the 24 hours; therefore $24^h : 22'\ 58''{\cdot}0 :: 3^h\ 52^m : 3'\ 42''{\cdot}0$, the proportional part of the decrease for $3^h\ 52^m$, which, *subtracted* from S. $7°\ 8'\ 14''{\cdot}9$, leaves S. $7°\ 4'\ 32''{\cdot}9$ for the Declination required.

The *Semidiameter of the Sun.* The numbers in this column express the angle at the centre of the earth subtended by the Sun's Semidiameter, and are required for reducing observations of the limb to the centre, as in the instance of measuring the altitude of the Sun's upper or lower limb, or the distance of the Moon from the Sun.

*Equation of Time.* The numbers in this column are the values of the equation at the instant of Mean Noon, and therefore serve more particularly to convert *Mean* into *Apparent* Time; for which purpose we have only to apply the equation according to the precept at the head of the column. Thus, if from mean noon of April 1, or

be subtracted the equation $3^m\ 56^s{\cdot}27$, the difference $11^h\ 56^m\ 3^s{\cdot}73$ is the corresponding apparent time. To find the equation of time at $8^h$ P.M. mean time on April 15, 1845, in longitude 30°, or $2^h\ 0^m$, West of Greenwich. Add the difference of longitude to the given time, because it is West, and the corresponding astronomical mean time at Greenwich is April $15^d\ 10^h\ 0^m$. The variation in 24 hours is $14^s{\cdot}75$, that is, the *sum* of the equations belonging to the noons of the 15th and 16th, because the equation has decreased to 0 and then increased in the interval, therefore

$$24^h : 14^s{\cdot}75 :: 10^h\ 0^m : 6^s{\cdot}15,$$

which, being greater than $0^m\ 1^s{\cdot}24$, the equation on the 15th, which was decreasing, shows that in the $10^h\ 0^m$ the equation has passed through its state of decrease to zero, or 0, and is now increasing. The difference $4^s{\cdot}91$ is the equation of time at the time proposed, and is to be added to mean time, because it has passed the zero.

*Sidereal Time at Mean Noon* is the angular distance of the First point of Aries, or the true Vernal Equinox, from the meridian, at the instant of Mean Noon: it is therefore the Right Ascension of the Mean Sun, or the time which ought to be shown by a Sidereal Clock at Greenwich, when the Mean Time Clock indicates $0^h\ 0^m\ 0^s$.

A Sidereal Clock represents the rotation of the Earth on its axis, as referred to the Stars, its hour-hand performing a complete revolution through the 24 hours in the interval between the departure of any meridian from a Star and its next return to it. At the moment that the Vernal Equinox, or a Star whose Right Ascension is $0^h\ 0^m\ 0^s$, is on the meridian of Greenwich, the Sidereal Clock ought to show $0^h\ 0^m\ 0^s$, and at the succeeding return of the Star, or the Equinox, to the same meridian, the Clock ought to indicate the same time.

The sidereal time here given is that in common use among astronomers, and expresses the actual hour-angle from the meridian, westward, of the true equinoctial point at the moment of observation. It is therefore affected by the equation of the equinoxes; and is not, strictly speaking, a *mean* or uniformly increasing quantity. It ought, therefore, to be termed *apparent sidereal time* in the same manner as apparent solar time reckons from the actual arrival of the sun's centre on the meridian; and in like manner, as mean solar time is reckoned from the arrival of an imaginary sun, moving uniformly with its mean velocity, so *mean sidereal* time (whose expression would be simply $\frac{\odot\text{'s mean longitude}}{15}$) would be reckoned from the transit of, not the *true*, but the *mean* equinoctial point. The smallness of the fluctuations to which a clock, regulated to *apparent* sidereal time compared with one regulated to *mean* sidereal time, is subject, being at the utmost only $2^s{\cdot}3$ in a period of nineteen years, has prevented the practical inconvenience of this from being felt: no clock being sufficiently perfect to go during so long a period without frequent re-adjusting; and as the corrections applied by astronomers to the observed right ascensions of all objects are adapted to this supposed irregularity in the rate of the clock, the mean right ascensions thence deduced come out correct. It has, therefore, not been thought necessary, in this instance, to depart from received usage, however theoretically objectionable such a mode of counting time may appear, since a change in this respect would involve the necessity of a corresponding change in all tables of nutation.

The Sidereal time at Mean Noon is useful in all cases where mean solar time is to be deduced from observations of the heavenly bodies. It serves to facilitate the reduction of sidereal to mean solar time, and *vice versâ*, by the help of the tables commonly used for that purpose, called a Table of Acceleration of Sidereal on Mean

tracted the equation
apparent time. To find
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Greenwich is April
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Vector) the *true* Longitude of the Sun at
causes the Sun to appear behind its true

nce of the Sun's centre from the plane of
cular to that plane.
*the Earth* is the logarithm of the distance
*rent* place of the centre of the Sun at mean
major of the orbit, being considered unity.
*ly* from the Solar tables, and enter into,
subsequent operations in the Ephemeris.
is required, as in calculating the Geocentric
liocentric position, it is necessary to reduce
*true*, by correcting it for aberration. The
ven at page 266, and may thence be readily
(See *Sun's Aberration*, page 591.) In
*Vector* should also be corrected for aberra-
orrection being too small to affect the accu-

expressions for aberration and Solar nutation,
places.
under which her Semidiameter would appear
and her *Horizontal Parallax* is the *greatest*
al Semidiameter would appear if seen from
requisite to obtain the position of the centre
, as in all cases of altitudes or lunar distances.
l parallax of the Moon at any given latitude
*d;* also for finding the parallax in altitude,
of reducing an observation of the Moon made
would be if made at the centre.
on made at sea, the horizontal *equatorial* parallax
allax in altitude, without regarding the previous
alculations requiring considerable precision, as in
this reduction cannot be dispensed with.
midiameter and Horizontal Parallax at 6ʰ A.M.
1ʰ to the east of Greenwich. The civil time
omical time, is February 12ᵈ 18ʰ, from which
ast of Greenwich, we have February 12ᵈ 17ʰ
or 5ʰ after midnight. Proceeding from the
h, we must compute the proportional part
lapsed since midnight, viz. 5ʰ; and for
to take this proportional part for the

Solar Time, and the corresponding Table of Retardation of Mean on Sidereal Time, according to the following rule:—Convert the interval from the mean noon immediately preceding, from the denomination given, to that required; and if mean time be required, the result will at once be that which the clock should show; but if sidereal time be that sought, the result must be added to the sidereal time at the preceding mean noon.

*Example:*—To convert $21^h\ 9^m\ 24^s{\cdot}04$ sidereal time, Jan. 2, 1845, into mean solar time, for the meridian of Greenwich.

| | h | m | s |
|---|---|---|---|
| Sidereal time given - - - - - - - - - - - - | 21 | 9 | 24·04 |
| Sidereal time *at* mean noon, January 2 - - - - - - | 18 | 47 | 55·42 |
| Interval in sidereal time *from* mean noon - - - - - | 2 | 21 | 28·62 |
| Retardation of mean on sidereal time for the interval - | | — | 23·18 |
| Mean solar time required - - - - - - - - - - - | 2 | 21 | 5·44 |

which is the interval elapsed since mean noon, expressed in mean time; and therefore the time which ought to be shown by a mean time clock.

*Vice versâ*, to convert $2^h\ 21^m\ 5^s{\cdot}44$ mean solar time, January 2, 1845, into sidereal time for the same meridian.

| | h | m | s |
|---|---|---|---|
| Mean interval from mean noon, January 2 - - - - - | 2 | 21 | 5·44 |
| Acceleration of sidereal on mean time for the interval - | | + | 23·18 |
| Sidereal interval *from* mean noon - - - - - - - | 2 | 21 | 28·62 |
| Sidereal time *at* mean noon, January 2 - - - - - - | 18 | 47 | 55·42 |
| Sidereal time required - - - - - - - - - - - - | 21 | 9 | 24·04 |

which ought to be the time shown by the sidereal clock at the instant in question.

If the place of observation be not on the meridian of Greenwich, the sidereal time must be corrected by the *addition* of $9^s{\cdot}8565$ for each hour (and proportional parts for the minutes and seconds) of longitude, if the place be to the west of Greenwich; but by its *subtraction*, if to the east. Thus in $9^h\ 10^m\ 6^s$ west longitude, the sidereal time at mean noon, January 2, instead of being, as in the foregoing Example, $18^h\ 47^m\ 55^s{\cdot}42$, must be corrected by adding $1^m\ 30^s{\cdot}37$, thus giving $18^h\ 49^m\ 25^s{\cdot}79$ for the time to be used, instead of that set down in the column.

The conversion of mean solar to sidereal time, and *vice versâ*, may, however, be performed, and with perhaps less liability to error, by means of this and of the column entitled *Mean Time of Transit of the First point of Aries*, at page XXII. of each month, using the Tables of Time Equivalents, inserted at pages 564 to 567.

To convert mean solar into sidereal time: To the sidereal time at the *preceding* mean noon add the sidereal interval corresponding to the given mean time; the sum will be the sidereal time required. (See Example at page 565.)

To convert sidereal into mean solar time: To the mean time at the *preceding* sidereal noon, add the mean interval corresponding to the given sidereal time; the sum will be the mean solar time required. (See Example at page 567.)

In this mode of reduction there is not, as in the former, by means of the Tables of Acceleration and Retardation, any distinction of cases, all the quantities being additive.

The Tables of Time Equivalents differ from the Tables of Acceleration and Retardation, in containing the values of intervals of each species of time, expressed in

terms of the other, instead of the *corrections*, respecting the proper application of which, a difficulty is sometimes felt by unpractised computers.

Sidereal time at mean noon is also used in finding the mean time of transit of a heavenly body.

Page III. of each Month.

The *Sun's Longitude*, here given, *is affected with aberration*, and reckoned from the *true* equinox: it is therefore the *apparent* longitude of the Sun at the instant of mean noon; or it is (if $\rho$ denote the Radius Vector) the *true* Longitude of the Sun at the time $0^h - 495''.775\ \rho$, because aberration causes the Sun to appear behind its true place in the Ecliptic.

The *Sun's Latitude* is the angular distance of the Sun's centre from the plane of the Ecliptic, measured on a circle perpendicular to that plane.

The *Logarithm of the Radius Vector of the Earth* is the logarithm of the distance between the centre of the Earth and the *apparent* place of the centre of the Sun at mean noon, the mean distance, or the semi-axis major of the orbit, being considered unity.

These quantities are derived *immediately* from the Solar tables, and enter into, indeed are the foundation of, nearly all the subsequent operations in the Ephemeris. Whenever the *true* longitude of the Earth is required, as in calculating the Geocentric position of a Planet or Comet from its Heliocentric position, it is necessary to reduce the *apparent* longitude of the Sun to the *true*, by correcting it for aberration. The Sun's aberration for every tenth day is given at page 266, and may thence be readily obtained for any other day of the year. (See *Sun's Aberration*, page 591.) In strictness, the *Logarithm of the Radius Vector* should also be corrected for aberration, but this is generally neglected, the correction being too small to affect the accuracy of the results in practice.

The Sun's longitude, entering into the expressions for aberration and Solar nutation, is required for the reduction of the Stars' places.

The *Moon's Semidiameter* is the angle under which her Semidiameter would appear if viewed from the centre of the Earth; and her *Horizontal Parallax* is the *greatest* angle under which the Earth's Equatorial Semidiameter would appear if seen from the centre of the Moon. The former is requisite to obtain the position of the centre from an observation of the Moon's *limb*, as in all cases of altitudes or lunar distances. The latter, for computing the horizontal parallax of the Moon at any given latitude on the Earth, *considered as a Spheroid;* also for finding the parallax in altitude, Right Ascension, &c., for the purpose of reducing an observation of the Moon made on the surface of the Earth, to what it would be if made at the centre.

In reducing observations of the Moon made at sea, the horizontal *equatorial* parallax is generally used for finding the parallax in altitude, without regarding the previous reduction to the Spheroid; but in calculations requiring considerable precision, as in lunar occultations and solar eclipses, this reduction cannot be dispensed with.

*Example.* To find the Moon's Semidiameter and Horizontal Parallax at $6^h$ A.M. February 13, 1845, at a place 15°, or $1^h$ to the east of Greenwich. The civil time at the place expressed in mean astronomical time, is February $12^d\ 18^h$, from which subtracting $1^h$, because the place is to the east of Greenwich, we have February $12^d\ 17^h$ for the corresponding time at Greenwich, or $5^h$ after midnight. Proceeding from the semidiameter given for midnight of the 12th, we must compute the proportional part of the variation in 12 hours due to the time elapsed since midnight, viz. $5^h$; and for ordinary purposes at sea, it will suffice simply to take this proportional part for the

correction of the registered value preceding the given time; thus the semidiameter for midnight, or $12^h$, of the 12th, is $14' \, 59''\cdot1$, and for the 13th at noon, or $24^h$, it is $14' \, 55''\cdot1$; the difference $4''\cdot0$ is the variation in 12 hours. Therefore,

$$12^h : 4''\cdot0 :: 5^h : 1''\cdot7,$$

which, *subtracted* (because the quantities are decreasing) from $14' \, 59''\cdot1$, gives $14' \, 57''\cdot4$ for the Moon's Semidiameter at the time proposed. Similarly, the Horizontal Parallax at midnight of the 12th is $54' \, 59''\cdot6$; and at noon of the 13th it is $54' \, 44''\cdot7$; the difference $14''\cdot9$ is the variation in the 12 hours which include the given time; therefore, $12^h : 14''\cdot9 :: 5^h : 6''\cdot21$, or $6''\cdot2$, which *subtracted* (because the quantities are decreasing) from $54' \, 59''\cdot6$ gives $54' \, 53''\cdot4$ for the Horizontal Parallax required. If greater accuracy be desired, a further correction must be applied to the values just obtained, on account of second differences, to compensate the error produced by supposing the first differences uniform. But the *greatest* error in the semidiameter which can arise by this supposition in the present instance is not one-tenth of a second; for, select four semidiameters from the Ephemeris, two preceding, and two following the given time, and take the first and second differences, thus:—

| | h | ′ ″ | ″ | ″ |
|---|---|---|---|---|
| February 12, | 0 | 15 3·9 | | |
| | | | − 4·8 | |
| | 12 | 14 59·1 | | + 0·8 |
| | | | − 4·0 | |
| 13, | 0 | 14 55·1 | | + 0·6 |
| | | | − 3·4 | |
| | 12 | 14 51·7 | | |

The mean of the second differences is $0''\cdot70$, and $\frac{1}{8}$ of this, which is the *greatest* effect, is only $0''\cdot088$.

A similar operation performed on the Parallaxes will show the error that would arise on the supposition of uniform or equal first differences, to be three-tenths of a second.

## Page IV. of each Month.

The *Moon's Longitude and Latitude* at Mean Noon and Midnight indicate the position of the Moon at these respective times, referred to the Ecliptic and the true Equinox, as it would be seen from the centre of the earth. They are the results deduced immediately from the Lunar Tables, and are the foundation of all subsequent calculations in which the Moon is concerned. These quantities are now of little use to the seaman, as the position of the Moon, with respect to the Equator, is given for every hour in the succeeding pages; but the Moon's Longitude is involved in the formulæ for nutation, and is therefore necessary for its determination. In finding the Moon's Longitude and Latitude for any other times than those of Mean Noon and Midnight, it is necessary to apply the equation of second, and sometimes even of third and fourth differences, on account of the irregular variation of her motion.

The *Moon's Age* at Mean Noon is the Mean Time elapsed since the Moon's ecliptic conjunction with the Sun, or since the Sun and Moon had the same Longitude. The numbers in this column represent her age at Greenwich, and are expressed in days, and decimal parts of a day.

The *Moon's Meridian Passage*.—This column contains the Greenwich Mean Time, to the nearest tenth of a minute, at which the Moon's centre is on the upper Meridian

of Greenwich, and is useful to indicate when the Latitude may be obtained from an observed meridian altitude of the Moon; also, in conjunction with a Table of Semi-diurnal Arcs, to determine approximately the times of the rising and setting of the Moon: it is likewise useful in finding the time of High Water.

When the symbol ( ♂ ) denoting conjunction occurs, as on January 7, we are to understand that the Moon does *not* pass the *upper* meridian on that day at Greenwich. This is the case once in every lunation, and arises from the circumstance of the Lunar day being greater than the Mean Solar day, and including it within its limits. In the present instance, the excess is $1^h\ 1^m{\cdot}7$, or the lunar day is equal to $25^h\ 1^m{\cdot}7$ Mean Solar time; the Moon passes the meridian on the 6th at $23^h\ 15^m{\cdot}6$, or $44^m{\cdot}4$ *previously* to the noon of the 7th, and does not return to the same meridian until $0^h\ 17^m{\cdot}3$ *after* the noon of the 8th. For the same reason there is also one day in every lunation on which the Moon does not transit the *lower* meridian, and this happens about the time of opposition, or when the difference of longitude of the Sun and Moon is 180°. In the list of Moon-culminating Stars, at pages 484 to 524, the days on which only one transit occurs are readily seen. On May 6th (page 497), for instance, it appears that the Moon transits the *lower* meridian only, while on May 21st (page 499), the only transit is that at the *upper* meridian.

To find the Mean Time of Transit under any other Meridian, suppose 45° or $3^h$ west of Greenwich, on January 25, 1845. The Meridian being to the west of Greenwich, the Transit will take place *after* the Greenwich time of Transit on the 25th; therefore take the difference between the Meridian Passages on the 25th and 26th, which is $0^h\ 45^m{\cdot}4$. Then, $24^h : 0^h\ 45^m{\cdot}4 :: 3^h : 5^m{\cdot}7$, which *added* to the Greenwich Mean Time of Transit gives $14^h\ 3^m{\cdot}6$ for the Mean Time of Transit at the given Meridian. Had the assumed Meridian been $3^h$ to the east of Greenwich, the Transit would have taken place *before* the Transit at Greenwich, and the proportional part of the difference between the 24th and 25th, must in this case have been *subtracted*. The times thus deduced are only approximate; but they are sufficiently accurate for the purposes usually required.

Pages V. to XII. of each Month.

The *Moon's Right Ascension and Declination* for every hour of the day, with the *Difference of Declination for* 10 *minutes*. By means of the quantities here given, the Latitude, Time, Azimuth, Moon's rising and setting, &c., may be deduced, with nearly as little labour as is required in the case of the Sun. The numbers represent the position of the Moon, as it would appear from the centre of the Earth, with respect to the Equator and the true Equinox: and they are given for every hour, with the view of rendering any correction for second differences unnecessary, except where extreme precision is required. The Right Ascension for any time is readily obtained by simply adding the proportional part of the hourly variation due to the interval elapsed since the preceding hour. Thus, suppose the Right Ascension of the Moon were required at $8^h\ 45^m$ mean time of January 8, in longitude 60°, or $4^h$ east of Greenwich. The given time, $8^h\ 45^m$, diminished by $4^h$, gives the corresponding Greenwich time $4^h\ 45^m$. The Right Ascension at $4^h$ is $19^h\ 38^m\ 26^s{\cdot}03$, and at $5^h$ it is $19^h\ 40^m\ 58^s{\cdot}95$; the difference, $2^m\ 32^s{\cdot}92$, is the increase in the interval, or $60^m$. Hence, $60^m : 2^m\ 32^s{\cdot}92 :: 45^m : 1^m\ 54^s{\cdot}69$, which being added to the Right Ascension at $4^h$, gives $19^h\ 40^m\ 20^s{\cdot}72$ for the Right Ascension at $4^h\ 45^m$ at Greenwich, or at $8^h\ 45^m$ under the proposed meridian. To find the Declination, we make use of the numbers in the column headed "Diff. Dec. for $10^m$." The number in this column standing

opposite to any hour is $\frac{1}{4}$ of the difference of the Declinations at that and the following hour. We therefore say, $10^m : 84''\cdot27 :: 45^m : 6'\ 19''\cdot2$, which being subtracted (because the Declinations are decreasing) from S. 17° 33′ 34″·4, the Declination at $4^h$, gives S. 17° 27′ 15″·2, for the Declination at the time proposed.

The *Phases of the Moon.* These are given at page XII. to the nearest tenth of a minute. The numbers denote the Greenwich Mean Time, at which the difference of Longitude between the Sun and the Moon is 0°, 90°, 180°, or 270°, being

0° at the New Moon,
90° at the First Quarter,
180° at the Full Moon,
270° at the Last Quarter.

The Moon's *Apogee and Perigee.* The numbers here given indicate, to the nearest hour, the Greenwich Mean Time at which the Moon is respectively at her greatest and least distance from the Earth.

Pages XIII. to XVIII. of each Month.

*Lunar Distances.*—These pages contain, for every third hour of Greenwich Mean Time, the angular distances between the apparent *centres* of the Moon and certain heavenly bodies, such as they would appear to an observer at the centre of the Earth. When a Lunar Distance has been observed on the surface of the Earth, and reduced to the centre, by clearing it of the effects of parallax and refraction, the numbers in these pages enable us to ascertain the exact Greenwich mean time at which the objects would have the same distance. They are arranged, from *west* to *east*, commencing each day with the object which is at the greatest distance *westward* of the Moon, in the precise order in which they appear in the heavens; W. indicating that the object is west, and E. east of the Moon. Thus we have at one view, by a simple reference to the date, all the lunar distances which are available for the determination of the Longitude.

The columns headed "P.L. of Diff." contain the Proportional Logarithms of the Differences of the distances at intervals of three hours, which are used in finding the Greenwich time corresponding to a given distance, according to the following rule, viz.: For the given day, seek in the Ephemeris for the *nearest* distance *preceding*, in order of time, the given distance, and take the difference between it and the given distance; from the proportional logarithm of this difference subtract the proportional logarithm standing opposite to the said *nearest* distance in the Ephemeris; the remainder will be the proportional logarithm of a portion of time to be added to the hour answering to the *nearest* distance, to obtain the approximate Greenwich mean time corresponding to the given distance.

If the distance between the Moon and a Star increased or decreased uniformly, the Greenwich time corresponding to a given distance, as found by the above rule, would be strictly correct; but an inspection of the columns of the Proportional Logarithms in the Ephemeris will show that this is not the case; and as the knowledge of the exact Greenwich time is desirable, a correction must be applied to the time so found for the variation of the differences of the distances. This correction may be obtained by means of the Table at page 560 of the present volume, in the following manner:

1. Find the Approximate interval by the preceding rule.

2. Take the difference between the proportional logarithms standing opposite to the distances in the Ephemeris which include the given distance.

3. With the approximate interval and this difference, as arguments, take out the correction from the table.

4. If the Proportional Logarithms are *decreasing*, *add* the correction to the approximate time; but if *increasing*, *subtract* it: the result will be the accurate Greenwich mean time.

*Example* I.—Suppose it were required to find the Greenwich Mean Time, at which the *reduced* distance between the Moon and Fomalhaut would be 49° 21′ 12″ on January 14, 1845. It appears, by inspecting the distances, that the time must be between *Noon* and III$^h$: the *nearest* distance *preceding*, in order of time, the given distance is therefore the

| | | | |
|---|---|---|---|
| Distance at *Noon* | - 48° 43′ 5″ | and P. L. - - | 3715 |
| *Reduced* Distance | - 49 21 12 | | |
| Difference - - | 0 38 7 | - - P. L. - - | 6742 |
| Approximate Interval | 1$^h$ 29$^m$ 39$^s$ | - - P. L. - - | 3027 |

The difference between the Proportional Logarithms in the Ephemeris, at *Noon* and III$^h$, is 26. Opposite to 1$^h$ 29$^m$ 39$^s$ (or the quantity nearest to it, 1$^h$ 30$^m$), and under 26, in the Table, we have for the correction 8$^s$, which, *added* to the Approximate Interval, 1$^h$ 29$^m$ 39$^s$, because the Proportional Logarithms are *decreasing*, gives 1$^h$ 29$^m$ 47$^s$, for the true interval from *Noon*: and hence the Greenwich Mean Time is 1$^h$ 29$^m$ 47$^s$.

We see that, in the preceding Example, the omission of this correction would only produce an error of 2′ in the Longitude. Cases may however occur, in which it would be greater.

It will sometimes happen, that the difference of the Proportional Logarithms will exceed 138, the limit of the Table of Correction; in this case the Table may be entered with the Approximate Interval, and *one-half or any fraction* of the difference of the Proportional Logarithms and the corresponding correction *increased in like proportion.*

*Example* II.—Suppose it were required to find the Greenwich Mean Time, at which the *reduced* distance between the Moon and Pollux would be 19° 16′ 57″ on April 12th, 1845. By inspecting the distances, it appears that the time must be between XV$^h$ and XVIII$^h$; therefore take the

| | | | |
|---|---|---|---|
| Distance at XV$^h$ - | - 19° 53′ 18″ | and P. L. - - | 3945 |
| *Reduced* Distance | - 19 16 57 | | |
| Difference - - | 0 36 21 | - - P. L. - - | 6948 |
| Approximate Interval | 1$^h$ 30$^m$ 9$^s$ | - - P. L. - - | 3003 |

The difference between the Proportional Logarithms in the Ephemeris, at XV$^h$ and XVIII$^h$, is 144, one-half of which is 72; under this number in the Table, and opposite that nearest the Approximate Interval, is 23$^s$: the correction is therefore 46$^s$ to be *subtracted* from the Approximate Interval, because the Proportional Logarithms are *increasing*; the time at Greenwich is therefore 16$^h$ 29$^m$ 23$^s$.

The omission of the correction in the preceding example would produce an error of $11\frac{1}{2}'$ in Longitude; it may, however, be considered as an extreme case, and such as will seldom be met with.

The proportional logarithms also serve to point out the Star which is most favourably circumstanced for accurate observation; that Star being to be preferred which has the least Proportional Logarithm opposite to it: for, the greater the velocity of the Moon from or towards a Star, the greater is the reliance to be placed on an observation of the distance; and it is a property of Proportional Logarithms to decrease as their natural numbers increase: a smaller Proportional Logarithm, therefore, indicates a greater velocity of the Moon, or a greater variation of distance in the interval, upon which the value of the observation depends. Thus, on January 21, 1845, between *Noon* and III$^h$, Spica $\pi\gamma$ is the most eligible star, because the Proportional Logarithm, 3017, is less than that of any other; and, by inspecting the columns of Proportional Logarithms, it will appear to deserve the preference until the end of the 27th.

On the 26th day of March, between IX$^h$ and *Midnight*, the following is the order of preference, as indicated by the Proportional Logarithms, viz., Spica $\pi\gamma$, Regulus, Saturn, Pollux, Antares, Mars, $\alpha$ Aquilæ, Fomalhaut.

It is by no means to be inferred from these remarks that observations of any of the distances are to be neglected; on the contrary, every registered star should invariably be observed when an opportunity offers. If, however, on a comparison of results, a considerable difference should be discovered, the Proportional Logarithms will indicate the stars which are least liable to be affected by errors of observation, and therefore deserving of a greater degree of confidence as to the accuracy of the results obtained from them.

## Page XIX. of each Month.

### *Configurations of the Satellites of Jupiter.*

In addition to the explanation given at the foot of the page, it may be remarked, that when two Satellites are in or near conjunction, instead of the usual symbol ( ♂ ), it has been thought better to place one above the other, without regard to their actual latitudes, but merely to distinguish them in their relation of *upper* and *lower*.

The Satellites are in the superior parts of their orbits, or have Jupiter between them and the Earth, when they are moving from West to East, or towards the right-hand of the page; but they are in the inferior parts of their orbits, or between the Earth and Jupiter, when they are moving from East to West, or towards the left-hand: in the former case Eclipses and Occultations occur, and in the latter Transits of the Satellites and their Shadows.

If an inverting telescope be directed towards Jupiter on June 28, 1845, at $13^h\ 30^m$ Mean Time, the Satellites will appear to an observer at Greenwich in the positions as laid down in the Table. The 1st and 2nd Satellites, which are *really* to the left of the Planet, will appear to the right of it; and the 3rd and 4th, which are *really* to the right, will appear to be to the left.

*West* and *East*, at the head of the page, are inserted to show the positions of the Satellites with respect to Jupiter, as they would appear in a telescope that does *not* invert. Jupiter being always to the South of the zenith of Greenwich, the Satellites which are here laid down on the left of Jupiter would appear to the *West*, and those on the right-hand to the *East* of the planet.

As regards their positions to the east or west, the page viewed directly, exhibits the Satellites in an inverted order; but if the leaf be turned over, and the page viewed from the other side, they will appear in their real positions. The simplest mode of changing the position of a Satellite from apparent to real, and *vice versâ*, is to draw a line from the Satellite through Jupiter's centre, and to place the Satellite upon this line at the same distance from the centre as before, only on the opposite side. If this operation be performed upon the Configurations as laid down in this volume, the Satellites will be reduced to their real position.

As the Configurations are given for *Mean Astronomical time*, which agrees with *Civil time* only from $0^h$ to $12^h$, or from noon to midnight, when the time exceeds $12^h$ the excess will indicate the Civil time of the succeeding day of the month.

Thus in May, 1845, the Configurations are given for $16^h$ mean time, but the 16th hour from noon is the same as the 4th hour from the following midnight, when a new Civil day has commenced. The appearances, therefore, relate to $4^h$ A.M. of the day following, according to the common mode of reckoning time; that is, the Configurations at $16^h$ on May the 26th relate to $4^h$ A.M. on May the 27th.

The Configurations enable an observer to distinguish the Satellites from each other, and from Stars in the vicinity of Jupiter.

## Page XX. of each Month.

### *Eclipses of the Satellites of Jupiter.*

On this page are given the Mean and Sidereal Times of the Eclipses of the Satellites, together with diagrams exhibiting the position of each Satellite with respect to the disc of the Planet at the moment of Immersion or Emersion, as it will appear in an inverting telescope. These diagrams have been laid down from calculations made for the eclipse nearest to the middle of each month; but they will serve very well for the whole of the month, *except near opposition*, the change in the position of Jupiter and his Shadow in the interval being too small to be appreciable by the eye, as is evident by comparing the Phases for any two successive months. All the Eclipses which happen when Jupiter is 8° *above* and the Sun 8° *below* the horizon of Greenwich, are marked with an asterisk to indicate that they are visible at that place; and those which happen when Jupiter is above, and the Sun below the horizon, are marked with a dagger, as, under very favourable circumstances, they may also be observed.

The Immersion (Im.) denotes the instant of the disappearance of the Satellite, by entering into the shadow of Jupiter; and the Emersion (Em.) the instant of its re-appearance at coming out of the shadow. They generally happen when the Satellite is apparently at some distance from the body of Jupiter, except near the opposition of Jupiter to the Sun, when the eclipse takes place near to the body of the planet. Before the opposition, the Immersions and Emersions happen on the Western side, but after opposition on the Eastern side, of the planet: With an inverting telescope, however, the appearances will be directly the contrary. Before the opposition, the Immersions only of the first Satellite are visible; and after the opposition, the Emersions only. It is seldom, also, that the Immersion and Emersion of the second Satellite can be observed at the same eclipse; but both phenomena are generally visible with the third and fourth Satellites.

To find the time at which the Immersion or Emersion of any of the Satellites will take place under any other meridian than that of Greenwich, it is merely necessary to

*add* the difference of longitude (*in time*) to the time of the phenomenon at Greenwich, if the meridian be *east* of Greenwich, or to *subtract* if it be *west*, and the sum or difference will be the time required. But this determines only the instant of the occurrence of the phenomenon: Jupiter may be below the horizon at this time: or he may be above it, and the intensity of sun-light, or even the brightness of twilight, may be such as to render the Satellites invisible: it is therefore necessary to ascertain the position of the Sun and Jupiter, with respect to the horizon, at the time of the phenomenon: this may be readily accomplished by means of a celestial globe, or near enough for the purpose, by finding the times of rising and setting of the objects, with the assistance of a table of semidiurnal arcs.

The Eclipses of Jupiter's Satellites, especially of the first, afford us, perhaps, the readiest means of determining the longitude; all that is necessary to be known being the exact time of observation: the difference between this time and the time at Greenwich, shows the difference of longitude at once, and it is *east* or *west* of Greenwich according as the time of observation is *greater* or *less* than the Greenwich time.

Suppose the Immersion of Jupiter's first Satellite to be observed, on May 4, 1845, at Paris at $10^h\ 40^m\ 57^s{\cdot}0$ Mean Time at that place; by reference to page XX., it appears that the Immersion will take place at Greenwich at $10^h\ 31^m\ 35^s{\cdot}5$ Greenwich Mean Time; the difference, $9^m\ 21^s{\cdot}5$, is the difference of longitude between Greenwich and Paris; and because the Paris time is greater than that at Greenwich, we infer that Paris is to the east of Greenwich.

Independent of defects in the tables, there are difficulties attending the observation of these phenomena which unfit them for *accurate* determinations of longitude. Different telescopes give different results; and care should be taken to have recourse to those corresponding observations which have been made under circumstances the most similar, and particularly with telescopes of the same quality and power. When extreme accuracy is not required, the Eclipses of the Satellites will always afford a good approximation towards the difference of meridians, and observations of them should on no account be neglected, especially when the Immersion and Emersion of the same Satellite are both visible.

## Page XXI. of each Month.

*Approximate Sidereal Times of the Occultations of Jupiter's Satellites by Jupiter, and of the Transit of the Satellites and their Shadows over the Disc of the Planet.*

These phenomena are inserted in order to apprise Astronomers when they are about to happen, as observations of them may tend to improve the Tables of the Satellites. The instruments required to observe them with anything like precision will preclude the possibility of their ever becoming available at sea. The times are given in days, hours, and minutes; the day being supposed to commence at mean noon, and the hours and minutes representing sidereal time, such as will be shown by a sidereal clock on that day.

The Phenomena for each Satellite are arranged under three distinct heads, and each in the order of the days of the month, so that an inspection of the columns opposite to each Satellite is necessary to determine what phenomena will happen on a given day.

An asterisk annexed to the day of the month, signifies that the phenomenon is visible at Greenwich, and a dagger, that the phenomenon *may be* visible under favourable circumstances, the limits in either case being the same as those adopted for the eclipses.

In the month of January, 1845, under the general heading "Occultations," opposite to Satellite I., and under Immersion, the first quantity recorded is $2^d\ 0^h\ 51^m$, which signifies that at $0^h\ 51^m$ sidereal time on January the 2nd an Immersion of the 1st Satellite takes place, and that it is visible at Greenwich. Under Emersion we find, for the whole of the month, "In the shadow," which signifies that the Emersion of the Satellite cannot be seen, because, although it ceases to be occulted by the body of the Planet, it is still involved in its shadow, from which it does not indeed escape until $4^h\ 23^m\ 40^s{\cdot}1$ sidereal time on the 2nd. (See Eclipses of the Satellites of Jupiter on the preceding page of the month.) Again, in the column of Occultations opposite to Satellite III., it appears that the 3rd Satellite is occulted on the 1st day of the month; that it disappears behind the disc of the Planet at $12^h\ 50^m$, and reappears at $16^h\ 4^m$, Sidereal time; but that both Immersion and Emersion are invisible at Greenwich.

In the column headed "Transits of Satellites," the first transit of Satellite I. at Greenwich appears to be on the 1st day, when the ingress takes place at $3^h\ 29^m$, and the egress at $5^h\ 46^m$, Sidereal time; that is, it comes in contact with Jupiter's disc at $3^h\ 29^m$, remains *on* the disc $2^h\ 17^m$, and quits it again at $5^h\ 46^m$, sidereal time; the ingress only, is visible at Greenwich.

The Transits of Shadows are to be interpreted in a similar manner.

## Page XXII. of each Month.

### 1. *Logarithms of* A, B, C, D, *for correcting the Places of the Fixed Stars.*

In the formulæ which express the relation of the apparent place of a Star to its mean place, and reciprocally, there are certain factors which are independent altogether of the Star's place, and are therefore common to all Stars. These factors depend upon the longitudes of the Sun, Moon, and Moon's ascending Node.

The Logarithms here given are the logarithms of these independent factors, conveniently arranged for incorporation with other terms depending upon each particular Star, according to the method recommended by Professor Bessel. They have been computed for Mean Midnight at Greenwich, according to the formulæ exhibited at page 439, omitting in C and D the terms depending on 2 ☾.

In the form under which they now appear, they are chiefly used in conjunction with the Astronomical Society's Tables,* which contain the Logarithms of the remaining factors depending on the Star's place; and for the reduction of any Star in that Catalogue, they appear to afford every facility that can be desired.

Where, however, the apparent place of any Star, *not in the Astronomical Society's Catalogue*, is required, similar quantities to those must either be computed with reference to the particular Star, before we can use the A, B, C, D, or recourse must be had to other and independent means; such, for instance, as are afforded by the Table at pages 440 and 441, which serves equally for all Stars. The formulæ by which this Table has been constructed are given at page 439.

The following Examples will sufficiently illustrate the mode of using both Tables.

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* "New Tables for facilitating the Computation of Precession, Aberration, and Nutation of 2881 Principal Fixed Stars, together with a Catalogue of the same, reduced to January 1, 1830. Computed at the Expense and under the Direction of the Astronomical Society of London. To which is prefixed an Introduction, explanatory of their Construction and Application. By Francis Baily, Esq." London, 1827. 4to.

Required the Correction ( $\Delta\ \alpha$) of the Right Ascension and ( $\Delta\ \delta$) of the Declination of $\gamma$ Orionis (No. 648, *Ast. Soc. Cat.*), for Precession, Aberration, and Nutation, at Greenwich Mean Midnight, on February 5, 1845.

1.— By the Astronomical Society's Constants and the Logarithms of A, B, C, D.

| | h m s | | ° ′ ″ |
|---|---|---|---|
| Mean $\alpha$, Jan. 1, 1830. - - | 5 16 1·00 | Mean $\delta$ - - - - - - - | + 6 11 17·10 |
| 15 Years' Precession - - | + 48·15 | 15 Years' Precession - | + 57·35 |
| Mean $\alpha$, Jan. 1, 1845 - - | 5 16 49·15 | Mean $\delta$ - - - - - - | + 6 12 14·45 |

| | Logarithms. | Nat. Nos. | | Logarithms. | Nat. Nos. |
|---|---|---|---|---|---|
| $a$ - - - - | + 8·1069 | | $a'$ - - - - | + 9·5119 | |
| A - - - - | − 1·1363 | | A - - - - | − 1·1363 | |
| $a$ A - - - - | − 9·2432 | s − 0·175 | $a'$ A - - - | − 0·6482 | ″ − 4·448 |
| $b$ - - - - | + 8·8184 | | $b'$ - - - - | + 8·3130 | |
| B - - - - | + 1·1415 | | B - - - - | + 1·1415 | |
| $b$ B - - - - | + 9·9599 | + 0·912 | $b'$ B - - | + 9·4545 | + 0·285 |
| $c$ - - - - | + 0·5065 | | $c'$ - - - - | + 0·5824 | |
| C - - - - | + 9·6295 | | C - - - - | + 9·6295 | |
| $c$ C - - - - | + 0·1360 | + 1·368 | $c'$ C - - | + 0·2119 | + 1·629 |
| $d$ - - - - | + 7·1395 | | $d'$ - - - - | − 9·9920 | |
| D - - - - | + 0·6434 | | D - - - - | + 0·6434 | |
| $d$ D - - - - | + 7·7829 | + 0·006 | $d'$ D - - | − 0·6354 | − 4·319 |
| | $\Delta\ \alpha$ = | + 2·111 | | $\Delta\ \delta$ = | − 6·853 |

2.—By the independent Constants.

For February 5, 1845, the Table at pages 440, 441, furnishes

$f$ = + ″19·61 ; $g$ = +″9·61 ; $G$ = 27° 15′ ; $h$ = + ″19·47 ; $H$ = 315° 21′ ; $i$ = − ″5·94

$\alpha$ (*in time*) converted = 79 12 - - - - - - - - - - 79 12

$G + \alpha$ = 106 27 $H + \alpha$ = 34 33

| | Logarithms. | Nat. Nos. | | Logarithms. | Nat. Nos. |
|---|---|---|---|---|---|
| $f$ - - - - - - - - - | | ″ + 19·61 | | | |
| $g$ - - - | + 0·9827 | | | + 0·9827 | |
| sin ($G + \alpha$) | + 9·9819 | | cos - - | − 9·4521 | |
| tan $\delta$ - - | + 9·0362 | | | − 0·4348 | ″ − 2·72 |
| | + 0·0008 | + 1·00 | | | |
| $h$ - - | + 1·2894 | | | + 1·2894 | |
| sin ($H + \alpha$) | + 9·7537 | | cos - - | + 9·9157 | |
| sec $\delta$ - - | + 0·0025 | | sin - - | + 9·0337 | |
| | + 1·0456 | + 11·11 | | + 0·2388 | + 1·73 |
| $\Delta\ \alpha$ (*in arc*) = | | + 31·72 | | | |
| | | | $i$ - - | − 0·7738 | |
| $\Delta\ \alpha$ (*in time*) = | | + 2ˢ·11 | cos $\delta$ - | + 9·9975 | |
| | | | | − 0·7713 | − 5·91 |
| | | | | $\Delta\ \delta$ = | − 6·90 |

Hence the App. Right Ascens. of $\gamma$ Orionis = 5 h 16 m 49·15 s + 2·11 s = 5 h 16 m 51·26 s

And the Apparent Declination - - - - - = + 6° 12′ 14″·45 − 6·90″ = + 6° 12′ 7″·55

2. *Mean Time of Transit of the First Point of Aries.*

The time in this column shows the distance of the *mean* Sun from the meridian, at the instant when the *true* point of intersection of the ecliptic and equator (called the first point of Aries) is on the meridian of Greenwich; and as the distance of the first point of Aries from the meridian, at the instant the mean Sun is on the meridian, is denominated Sidereal Time at Mean Noon, this may, by analogy, be termed the *Mean Time* at *Sidereal Noon*. It is the time which ought to be shown by a mean time clock adjusted to the Greenwich meridian, at the moment that a clock, adjusted to sidereal time, indicates exactly $0^h\ 0^m\ 0^s$. The use of this column is to facilitate the reduction of sidereal to mean solar time, with the help of the Table of Time Equivalents, given at pages 566 and 567, of this volume, as has been already explained at page 578.

3. *Mean Equinoctial Time.*

Mean Equinoctial Time signifies the Mean Time elapsed since the instant of the Mean Vernal Equinox. The numbers in this column represent this time, at every Mean Noon, in Mean Solar days and fractional parts of a day; it is reckoned from the Mean Vernal Equinox of 1844, between January $1^d$ and March $22^d{\cdot}159342$, but after March $22^d{\cdot}159342$ from the Vernal Equinox of 1845; for the Equinoctial Year has been assumed, according to Bessel, (*Conn. des Tems*, 1831, Additions, page 154) equal to 365·242217 Mean Solar days; and as the Equinoctial Time corresponding to the Mean Noon of March 22, 1845, is $365^d{\cdot}082875$, it is evident that the Equinoctial Year of 1844-45 was completed, and that a new year commenced, at $0^d{\cdot}159342$ after Mean Noon of the 22nd.

The fraction of the day at the head of the column is common to all the days of the Equinoctial Year. Thus, at Mean Noon of January 19, 1845, the Equinoctial Time is $303^d{\cdot}082875$, and on January 20 it is $304^d{\cdot}082875$, and so on until March $22^d{\cdot}159342$, when the year terminates, and the fractional part of the day changes. At Mean Noon of March 23, 1845, the Equinoctial Time is $0^d{\cdot}840658$, and this fraction is to be annexed to all the numbers in the column of days, from the period of the change until the equinox of 1846.

At the instant the Mean Sun arrives at the Mean Vernal Equinox, it must also be on *some* meridian, and this meridian will then have its equinoctial time corresponding with its Mean Solar time, each of which will be $0^h\ 0^m\ 0^s$, and they will continue to correspond throughout the Equinoctial Year. At the end of the Equinoctial Year, the Sun will have passed this meridian 365 times, and have performed, besides, a certain portion of its 366th diurnal revolution, viz. $0^d{\cdot}242217$; it will, therefore, have arrived at some other meridian, which will now, in its turn, reckon the Mean Equinoctial and Mean Solar time from the same point, and remain constant for the year. Thus the meridian, from which the time is reckoned, is shifting its position at the end of every year by $0^d{\cdot}242217$, or $5^h\ 48^m\ 47^s{\cdot}55$, to the Westward. Between the Vernal Equinoxes of 1845 and 1846, this itinerant meridian corresponds to Longitude $0^d{\cdot}840658$ East, or $3^h\ 49^m\ 27^s{\cdot}15$ West of Greenwich.

This species of time was first introduced in the Supplement to the Nautical Almanac for 1828, with a very full explanation of its nature and use. It there appears, that the use of Equinoctial Time is to afford an uniform date, which shall be independent of the different meridians, and of all inequalities in the Sun's motion, and shall thus save the necessity, when speaking of the time of any event's happening, of mentioning at the same time the place where it was observed or computed. Thus, it is the same thing to say that a comet passed its perihelion on January 5, 1845, at $5^h\ 47^m\ 0^s{\cdot}0$ Mean Time at Greenwich; at $5^h\ 56^m\ 21^s{\cdot}5$, Mean Time at Paris; or at 1844$^y$ 5

$7^h\ 46^m\ 20^s{\cdot}40$ Equinoctial Time; but the former dates make the localities of Greenwich and Paris enter as elements of the expression; whereas the latter expresses the period elapsed since an epoch common to all the world, and identifiable independently of all localities. By this means all ambiguities in the reckoning of time are supposed to be avoided.

To convert Mean Solar into Equinoctial Time: To the corresponding Greenwich Mean Time add the Equinoctial Time at Mean Noon of the same day at Greenwich: the sum will be the Equinoctial Time required. Thus, in the instance of the comet before alluded to, Paris being $9^m\ 21^s{\cdot}5$ East of Greenwich, subtract this from the Paris time and we get $5^h\ 47^m\ 0^s{\cdot}0$ for the corresponding Greenwich Time, to which add $289^d{\cdot}082875$, or $289^d\ 1^h\ 59^m\ 20^s{\cdot}40$, the Mean Equinoctial Time at Greenwich Mean Noon of January 5, and the sum will represent the Mean Equinoctial Time of the Comet's passage of its perihelion, viz. $289^d\ 7^h\ 46^m\ 20^s{\cdot}40$, from the vernal equinox of the year 1844.

4. *Day of the Year.*

The numbers in this column indicate the complete days at mean noon which have elapsed since mean noon of January 1. Mean noon of January 1 is therefore reckoned 0, and 1 is found opposite to that of January 2, because at that instant one entire day has elapsed.

5. *Fraction of the Year.*

These fractions are the quotients found by dividing the numbers in the preceding column by 365·25. The day and fraction of the year are useful in many Astronomical calculations.

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*Obliquity of the Ecliptic.* (Page 266.)

The apparent inclination of the plane of the Ecliptic to that of the Equator is here given for every 10th day of the year, and continued to January 6 of the following year, marked December 37 for the sake of convenience. This inclination is ever varying, as well from the effect of its mean diminution, as of the nutation of the earth's axis: it is an important element in deducing the positions of the heavenly bodies, with reference to either of the planes, when we know their positions with respect to the other; as, for instance, in computing Right Ascensions and Declinations from Longitudes and Latitudes, and *vice versâ*. If the apparent Obliquity be required for any date not to be found in the Table, it may be obtained by simply taking the proportional part of the variation of the obliquity corresponding to the interval which comprises the given date. Thus, the apparent Obliquity on October 31, 1845, is $23°\ 27'\ 27''{\cdot}66$. For the variation of the Obliquity in the ten days between October the 28th and November the 7th, is $0''{\cdot}26$ or $0''{\cdot}026$ for one day, and this being multiplied by 3, the number of days between the 28th and the 31st, gives $0''{\cdot}08$, to be subtracted from the Obliquity of October the 28th. For most purposes, however, the Obliquity corresponding to the date in the Table nearest to the given date is sufficient, as is evident from an inspection of the quantities.

*Sun's Horizontal Parallax.* (Page 266.)

The Sun's Horizontal Parallax is the *greatest* angle under which the equatorial semidiameter of the earth would appear at the Sun's centre. It varies inversely as the distance, and the numbers in this column show the values for every tenth day of the year.

The Parallax serves for reducing a Solar observation made at the surface of the earth to what it would have been if made at the centre.

*Sun's Aberration.* (Page 266.)

The progressive motion of light, combined with the motion of the Earth in its orbit, causes the Sun to appear in a different position from that which he really occupies, the true position being always in advance of the apparent. The numbers in this column indicate, for every 10th day of the year, the amount of Aberration, or the quantity to be applied to the *true* longitude of the Sun to obtain the *apparent* longitude. The longitudes derived from the Solar Tables include Aberration, and are therefore *apparent* longitudes, such as are contained in this Ephemeris. If the *true* longitude of the Sun be wanted, as is the case in finding the longitude of the Earth for the calculation of the Geocentric place of a body, the aberration must be applied with a contrary sign. Thus, on June 10, 1845, at Mean Noon, by *adding* $20''\cdot05$, the amount of aberration, to $79^\circ\ 23'\ 43''\cdot2$, the apparent longitude of the Sun, we obtain $79^\circ\ 24'\ 3''\cdot25$ for the true longitude.

*Equation of the Equinoxes.* (Page 266.)

The Solar and Planetary Tables furnish us with the places of the Heavenly Bodies referred to the Mean Equinox; but the true place of the Equinox at any time differs from its mean place, by a quantity which is termed the Equation of the Equinoxes; and the numbers here given show the value of the Equation for every 10th day of the year. They are to be applied, with their proper signs, to the Longitudes reckoned from the Mean Equinox, to obtain the values with respect to the True Equinox.

If the Longitude of a body be given with reference to the true Equinox, as in this Ephemeris, and it be required to find its Longitude reckoned from the Mean Equinox, the Equation of the Equinoxes must be applied with a contrary sign. Thus, the longitude of the Sun, reckoned from the true Equinox, on July 20, 1845, at Mean Noon, is $117^\circ\ 32'\ 49''\cdot3$, and the Equation of the Equinoxes is $+\ 14''\cdot91$; therefore, applying it with the contrary sign, the difference $117^\circ\ 32'\ 34''\cdot39$ is the Sun's Longitude from the *Mean* Equinox on that day.

The Equation corresponding to any date not contained in the Table, may be obtained in the usual way by interpolation.

The Equation of the Equinoxes in Right Ascension, in a similar manner, enables us to find the *apparent* point of intersection of the Ecliptic *on the Equator;* and is necessary in computing Sidereal Time.

*Mean Longitude of ☾'s ascending Node.* (Page 266.)

This column contains the Mean Longitude of the Moon's ascending Node, at Mean Noon of every 10th day of the year reckoned from the Mean Equinox. The place for any intermediate day is easily found from the daily motion inserted at the foot of the column. The Longitude of the Node is necessary in the calculation of Nutation; it is also sometimes used to determine roughly the Stars which are likely to undergo occultation by the Moon.

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*Ephemeris of the Planets.* (Pages 267 to 435.)

These pages contain the Geocentric and Heliocentric Places of the Planets, Mercury, Venus, Mars, Vesta, Juno, Pallas, Ceres, Jupiter, Saturn, and the Georgian.

The Geocentric Places are the places of the centres of the planets, as they would appear from the centre of the Earth; the Heliocentric, such as they would appear from the centre of the Sun.

The positions of the larger planets are given for Greenwich Mean Noon and the Time of Transit on every day of the year. But those of the minor Planets are given at Noon of every fourth day only, and, of Vesta for three months, and Juno, Pallas, and Ceres for one month preceding and following their respective Oppositions, at Time of Transit on each day. The Geocentric Right Ascensions and Heliocentric Longitudes, are reckoned from the True Equinox. The Geocentric Right Ascensions and Declinations *are affected with aberration*, and are therefore *apparent* positions.

By means of the positions of Venus, Mars, Jupiter, and Saturn, and particularly of Venus and Jupiter, which are frequently visible when the Sun is above the horizon, the Latitude, Time, and Variation of the Compass, may be found with nearly as much facility and accuracy as by the Sun.

The column headed "Meridian Passage" shows the Mean Time of the Planet's Transit over the meridian of Greenwich, and serves to find the Mean Time of Transit over any other meridian. As in the instance of the Moon before noticed, there are some days on which the planets do not pass the meridian; these are indicated by two asterisks (* *). If we refer to page 280, we shall find that Mercury does not pass over the Greenwich meridian on July 4th, and for a similar reason, viz., that the planetary day is here longer than the mean solar day, and commences so near, but previously, to the noon of the 4th, viz., $3^m \cdot 8$, as to want still $1^m \cdot 8$ of its completion at the termination of the 4th day. The planetary day, therefore, includes the solar day of July 4th: it begins *before* the solar day and ends *after* it, and the planet cannot arrive at the meridian at any period of it.

Another phenomenon takes place in the case of the planets, which, however, does not occur with the Moon; it is that of two transits on the same day, which arises from the planetary day being sometimes *shorter* than the solar day, commencing *after* and terminating *before* the solar day, and thus falling entirely within it. This cannot be the case with the Moon, because the lunar day is always greater than the solar day. When two transits occur, the times of both are registered, as at page 284, September 10th, where it appears that Mercury passes the Greenwich meridian $2^m \cdot 0$ after Mean Noon of the 10th, and again at $23^h\ 54^m \cdot 7$ on the same day, or $5^m \cdot 3$ before the arrival of the following Mean Noon.

The positions of the planets for any time not given in the Ephemeris, and under any other meridian than that of Greenwich, are to be found by interpolation in the usual way. *Example:* Required the Right Ascension and Declination of Venus at $6^h$ Mean Time on June 15, 1845, in longitude 30° west of Greenwich; also the time of Venus' passage over this meridian on the same day. The difference of longitude $2^h$ *added* (because it is west) to the given time, gives $8^h$ for the corresponding Greenwich time.

1. *For the Right Ascension.* The Right Ascension on June 15 is $6^h\ 10^m\ 19^s \cdot 18$, and on June 16 it is $6^h\ 15^m\ 42^s \cdot 10$; the difference, $5^m\ 22^s \cdot 92$, is the variation of the Right Ascension in 24 mean hours; therefore $24^h : 5^m\ 22^s \cdot 92 :: 8^h : 1^m\ 47^s \cdot 64$, the proportional part of the variation answering to $8^h$; and this proportional part added (because the Right Ascensions are increasing) to $6^h\ 10^m\ 19^s \cdot 18$, the Right Ascension at mean noon on June 15, gives $6^h\ 12^m\ 6^s \cdot 82$ for the Right Ascension required.

2. *For the Declination.* The Declination on June 15 is N. 24° 7′ 21″·4, and on the 16th it is N. 24° 7′ 50″·4, the difference, 0′ 29″·0, is the variation in 24 hours; and the proportional part of this variation for $8^h$ is 0′ 9″·7, which, added to the Declination at noon on the 15th, gives N. 24° 7′ 31″·1 for the Declination required.

3. *For the Meridian Passage.* Take the difference of the times of two consecutive transits; and considering this difference as an acceleration or retardation of the Meridian Passage while the planet has passed over $24^h$ of geographical longitude, take the proportional part of it, due to the difference of meridians, for a correction to be applied to the Meridian Passage at Greenwich, bearing in mind that in east longitudes the passage precedes that at Greenwich, when times are accelerated, and follows it, when they are retarded; and the contrary in west longitude. In the present case Venus passes the meridian of Greenwich on June 15 at $0^h\ 35^m{\cdot}9$, and on June 16 at $0^h\ 37^m{\cdot}3$; the difference is $1^m{\cdot}4$, therefore $24^h : 1^m{\cdot}4 :: 2^h : 0^m{\cdot}1$, the proportional part to be added to $0^h\ 35^m{\cdot}9$, (because the passages are accelerated, and the longitude is west of Greenwich,) which gives $0^h\ 36^m{\cdot}0$, mean time at the given place, for the Meridian Passage. Where great accuracy is not required, as in predicting the time of passage, in order to be prepared for observing the altitude of the planet on the meridian, for the determination of the latitude, this method will suffice.

The Right Ascension and Declination at Transit over the Meridian at Greenwich, are readily reduced to the time of transit over any other meridian not far distant, by means of their Variations in 1 hour of Longitude. Thus: prefix the sign — to the Longitude of the proposed meridian if it be east of Greenwich, but + if it be west, and multiply it by the variation; the product applied *algebraically* (South Declination being considered as negative) to the transit results for Greenwich, will give those for the proposed meridian. *Example:* Suppose the Right Ascension and Declination of Mars were required at Vienna on January 23rd, 1845. Vienna is east of Greenwich $1^h\ 5^m\ 31^s{\cdot}9$, or $-\ 1^h{\cdot}092$, and the "Variation of Right Ascension in 1 hour of Longitude" on January 23rd is $+6^s{\cdot}64$: the product of these numbers is $-\ 7^s{\cdot}25$, which, applied to $16^h\ 2^m\ 1^s{\cdot}91$, the Transit Right Ascension at Greenwich, gives $16^h\ 1^m\ 54^s{\cdot}66$ for that at Vienna. The Variation of the Declination on January 23rd is $-\ 20''{\cdot}3$, and the product of $-\ 20''{\cdot}3$ and $-\ 1^h{\cdot}092$ is $+\ 22''{\cdot}2$, which applied to S. or $-\ 20°\ 9'\ 10''{\cdot}5$, gives S. $20°\ 8'\ 48''{\cdot}3$ for the Declination at Vienna.

The "Sid. Time of Sem. pass. Mer." (Sidereal Time of the Semidiameter passing the Meridian,) serves to reduce an observation of the Right Ascension of the limb, to that of the centre, and the "Semidiameter" answers a similar purpose for the Declination.

The "Hor. Par.," or Horizontal Parallax, serves for reducing an observation made at the surface to the centre of the Earth.

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(*Fixed Stars.* Pages 436 to 483.)

In pages 436 to 438 are given the mean Right Ascensions and Declinations of 100 principal fixed Stars for Jan. 1, 1845, together with their Annual Variations.

The *standard* Stars are distinguished by capital letters; North Declination by N., and South Declination by S.

The sign + prefixed to an Annual Variation of Right Ascension indicates that the variation is to be *added to*, and the sign —, that it is to be *subtracted from*, the Right Ascension: also, for Stars having *North* Declination, + signifies *add*, and — *subtract*: but for Stars of *South* Declination, + denotes that the Variation is to be *subtracted from*, and — that it is to be *added to*, the Declination.

*Example* 1. Required the Mean Right Ascension and Declination of α TAURI or *Aldebaran* on May 31, 1845. The Annual Variation of the Right Ascension is

+ 3ˢ·4273; the Fraction of the year corresponding to May 31, is ·411 (page XXII. of May); the product of these numbers (1ˢ·409) is the proportional part of the annual variation due to the period elapsed since January 1, which *added*, because the sign is +, to the Mean Right Ascension on Jan. 1, *viz.*, $4^h\ 27^m\ 1^s{\cdot}976$, gives $4^h\ 27^m\ 3^s{\cdot}385$, for the Mean Right Ascension on May 31. The Annual Variation of the Declination is + 7″·912, which, multiplied by ·411 as before, and the product (3″·25) *added*, because the sign is + and the Declination *North*, to the Mean Declination on Jan. 1, 1845, *viz.*, N. 16° 11′ 33″·48, gives N. 16° 11′ 36″·73, for the Mean Declination required.

*Example* 2. Required the Mean Right Ascension and Declination of β Ursæ Minoris on June 1, 1845. Here the Annual Variation of Right Ascension is $-0^s{\cdot}2702$, and the fraction of the Year ·413 (page XXII. of June); the product ($0^s{\cdot}112$) therefore being *subtracted*, because the sign of the Annual Variation is —, from $14^h\ 51^m\ 13^s{\cdot}469$, the Right Ascension on Jan. 1, gives $14^h\ 51^m\ 13^s{\cdot}357$, for the Right Ascension on June 1, 1845.

For the Declination, we have the Annual Variation = — 14″·714, which, multiplied by ·413, gives 6″·08. The Declination being *North*, and the sign of the Variation —, this product must be *subtracted* from N. 74° 47′ 20″·30, and the result is N. 74° 47′ 14″·22.

*Example* 3. Required the Mean Declination of α Scorpii or *Antares* on May 31, 1845. The Annual Variation is — 8″·480, and the fraction of the Year ·411; the product of these numbers (3″·49) being *added*, because the Declination is *South*, and the sign of the Variation —, to the Declination on Jan. 1, *viz.*, S. 26° 4′ 56″·11, the sum, S. 26° 4′ 59″·60 is the Declination on May 31, 1845.

Next (page 439) follow Bessel's Formulæ of Reduction; and (pages 440 and 441) a Table for the Reduction of Stars, independently of the Astronomical Society's Constants, an example of which is given at page 588.

The apparent places of α and δ Ursæ Minoris are given for every day of the year, and those of the remaining 98 Stars for every *tenth* day. They indicate the position which ought to be shown by perfect instruments at the time of the Star's transit over the meridian of Greenwich; and, therefore, supposing the catalogue of mean places to be correct, they serve to detect any errors of the instruments.

The hours and minutes of Right Ascension, and the degrees and minutes of Declination, are placed at the heads of the columns as constants, and belong equally to all the numbers below them. This arrangement has rendered it necessary, in numerous instances, to continue the seconds beyond 60, as the width of the page would not permit of otherwise indicating any change in the minutes. Thus, the apparent Right Ascension of α Eridani at page 450, on October 18, 1845, is registered $1^h\ 31^m\ 60^s{\cdot}17$, and is to be read $1^h\ 32^m\ 0^s{\cdot}17$. Again, the Declination of α Aurigæ (page 452), on March 22, is registered N. 45° 49′ 67″·4, which signifies N. 45° 50′ 7″·4.

The small figures on the right hand of the vertical columns of seconds represent the differences of the quantities above and below them on the left, or the variation of Right Ascension and Declination in 10 days, and serve to find, by interpolation, the values for any intermediate day. As in the case of the Planets before explained, a Star will sometimes arrive at the meridian twice in one Mean Solar day. Wherever this occurs, an asterisk is placed opposite to the interval, and it signifies that the Star has passed the meridian 11 times in the 10 Mean Solar days, and consequently that the Right Ascension or Declination on any intermediate day is to be determined in

these particular instances by taking $\frac{1}{11}$th part, instead of $\frac{1}{10}$th, for the daily variation in the interval. Thus, at page 471, we find in the instance of α HERCULIS, an asterisk opposite the interval between December 7 and 17, and a difference of 0ˢ·12 opposite to the interval between the seconds belonging to those dates; we therefore infer that 11 transits have taken place, and that the daily variation of the Right Ascension is 0ˢ·011.

When extreme accuracy is required, the apparent places of the 5 Polar Stars demand a further correction, depending on the terms which involve 2☾. The apparent places do not include these corrections, on account of the rapid variation of the argument, viz., about 26° in a day, but they are given in a Table at pages 482, 483, for every degree of the Moon's Longitude, and may be readily applied, agreeably to the precept at the foot of that Table.

Formulæ for correcting for *daily* aberration are given in the Preface.

*Moon-Culminating Stars.* (Pages 484 to 524.)

Those Stars are denominated Moon-Culminating Stars, which being near the Moon's parallel of Declination, and not differing much from her in Right Ascension, are proper to be observed with the Moon, in order to determine differences of meridians. This is effected by comparing the differences of the observed Right Ascensions of such a Star and the Moon's bright limb at any two meridians. If the Moon had no motion, the difference of her Right Ascension from that of the Star would be constant at all meridians; but in the interval of her transit over two different meridians, her Right Ascension will have varied, and the difference between the two compared differences will exhibit the amount of this variation, which added to the differences of the meridians shows the angle through which the westerly meridian must revolve before it comes up with the Moon; hence, and knowing the rate of her increase in Right Ascension, the difference of longitude may be easily obtained.

For the determination of this variation, recourse has hitherto been had to actual observations made at different meridians, because any errors in the computed places of the Moon and Stars are thereby avoided; and the places were formerly given merely with the view of indicating the times when the observations were to be made. In the present List, however, the Right Ascensions are given with every possible degree of accuracy, so that they may be considered, at least approximately, in the light of corresponding observations made at Greenwich, and be taken to represent the indications of the Greenwich instruments, the same as though they had been actually observed. The traveller has thus an opportunity of rendering his observations immediately available for determining his longitude with considerable accuracy.

*The Right Ascension of the Moon's bright limb* and *Declination of her centre*, at the instant of their respective transits at Greenwich, are given for the lower as well as the upper Culmination, L. being put to denote the Lower Culmination, and U. the Upper Culmination; the Roman numerals indicate the limb of the Moon with reference to its transit over the meridian. The Moon's age at the time of her upper transit, to the nearest tenth of a day, is inserted in the column containing the Magnitudes of the Stars.

The numbers in the column "Var. of ☾'s R. A. in 1 hour of Long." represent the Variation in Right Ascension of the Moon's Limb during the interval of her transit over two meridians, equidistant from that of Greenwich, and *one* hour distant from each other. They have been deduced from the Right Ascensions of the *bright limb*, and therefore include the effect produced by the change of the semidiameter.

They serve to determine the Longitude where the difference of meridians is not very great; but where this difference is considerable, and extreme accuracy is wanted, that variation in Right Ascension should be used which corresponds to the middle of the interval between the observations, which may be readily obtained by interpolation. They also serve to determine the Right Ascension of the bright limb at its transit over any other meridian. Thus: Multiply the difference of longitude between Greenwich and the given meridian, by the variation; and, according as the given meridian is east or west of Greenwich, subtract or add the product to the Right Ascension at Greenwich; the result will be the Right Ascension of the bright limb at transit over the proposed meridian. *Example:* On May 17, 1845, the Right Ascension of the Moon's first limb is $12^h\ 13^m\ 42^s{\cdot}76$, at its upper transit at Greenwich, and the variation for 1 hour of longitude is $132^s{\cdot}41$: Required the Right Ascension of the limb at its upper transit at Paris. Paris is $9^m\ 21^s{\cdot}5$, or $0^h{\cdot}156$, East of Greenwich; therefore, multiplying $132^s{\cdot}41$ by $0{\cdot}156$, and subtracting the product $20^s{\cdot}66$ from $12^h\ 13^m\ 42^s{\cdot}76$, we have $12^h\ 13^m\ 22^s{\cdot}10$, for the Right Ascension at Paris.

In a similar manner the Declination may be determined at transit over any other meridian not far distant from that of Greenwich, bearing in mind that South Declinations and East Longitudes are to be considered as *negative*. Thus, in the above *Example:* The Moon's Declination at her upper Transit at Greenwich is S. $6^\circ\ 1'\ 21''{\cdot}0$, and the "Var. of ☾'s Dec. in 1 hour of Long." $-\ 721''{\cdot}6$, which, multiplied by $-\ 0^h{\cdot}156$, gives $+\ 1'\ 52''{\cdot}6$, to be applied to S. or $-\ 6^\circ\ 1'\ 21''{\cdot}0$; the Declination at the upper transit at Paris is therefore S. $5^\circ\ 59'\ 28''{\cdot}4$.

Where an asterisk is placed opposite to a Star's name, it is intended to denote that the Star is favourably situated for observing its Declination along with that of the Moon in both hemispheres, with a view to the accurate determination of the Moon's Parallax.

The numbers in the column entitled "Sid. Time of ☾'s Sem. pass. mer.," express the Sidereal intervals which the Moon's Semidiameter, at the time of transit at Greenwich, takes in passing the meridian, and therefore serve to determine the Transit of the centre from an observed Transit of either limb.

*Occultations.* (Pages 525 to 527.)

These pages contain a list of the Fixed Stars to the sixth magnitude inclusive, the Occultations of which by the Moon will happen when the objects are above the horizon of Greenwich, together with the Sidereal and Mean Times of the Immersions and Emersions, and the points on the circumference of the Moon's image, where the Star, viewed with a telescope that inverts, will disappear and reappear. By "Angle from N. Point" is to be understood the arc included between the Star, when in contact, and the point of intersection of the limb with a circle passing through the North Pole and the centre of the Moon's image; and by "Angle from Vertex," the arc between the Star at contact, and the point where a circle, passing through the zenith and the Moon's centre, intersects the limb; the angles in all cases being reckoned towards the right hand round the circumference of the Moon's image, as seen in an inverting telescope. These latter angles will be found very useful in observing Occultations of small stars with a telescope not mounted equatorially; and, for the observation of an [illegible]rsion, a knowledge of the angle is absolutely necessary to enable the observer to [illegible] his attention to the point of the Moon's limb where the Star will reappear. [illegible]me instances, Occultations have been inserted which taking place in, or near [illegible] horizon of Greenwich, are not visible there, but may be visible at places not far [illegible]nt from Greenwich.

*Elements for facilitating the Computation of Occultations of certain Stars by the Moon.*
(Pages 528 to 538.)

These pages contain, 1. The *Apparent* places, at Greenwich Mean Midnight, of the Fixed Stars to the sixth magnitude inclusive, the occultations of which will take place above the horizon at Greenwich.

2. The *Apparent* Places of those Planets and *all* Stars to the fifth magnitude inclusive, the occultations of which will be visible at *some* part of the Earth.

3. The Greenwich Mean Time at which the Moon would, if viewed from the centre of the Earth, appear to have the same Right Ascension as the Star.

4. The difference of Declination and Position of the Moon, as it would appear with respect to the Star at the instant of Conjunction in Right Ascension.

5. The Parallels of Latitude *beyond* which the Star cannot be occulted by the Moon.

These Elements are useful in the calculation of an Occultation, for being referable to the Moon and Star, as seen from the centre of the Earth, they are independent of geographical position, and serve equally for all places. It is only necessary to apply the difference of longitude from Greenwich to the Greenwich Mean Time of conjunction, to find the time of conjunction at any other meridian; and it is this time to which the positions of the Moon and Star here given will equally correspond.

Thus, the position of the Moon and $\nu$ Geminorum, on April 12, 1845, at $16^h\ 44^m\ 43^s$, Mean Time at Greenwich, is the position at $16^h\ 54^m\ 4^s{\cdot}5$ Mean Time at Paris, because Paris is $9^m\ 21^s{\cdot}5$ east of Greenwich.

By Limiting Parallels are to be understood those parallels of latitude beyond which an occultation cannot *possibly* occur.

Suppose an observer situate at a star, and having the Moon between him and the Earth, and that he could see the Moon projected on the Earth's disc; he would observe it moving across the disc from west to east, covering a zone whose breadth would be equal to the apparent diameter of the Moon. Now, it is only within the limits of this zone that the Occultation of a Star by the Moon can take place. To all the places through which the boundary lines pass, the Star will appear just to touch the Moon's limb; and that projected parallel of latitude, to which one of the boundary lines is a tangent, is one of the limiting parallels, while the intersection of the other boundary line with the circumference of the Earth's disc determines the other limiting parallel.

Limiting Parallels are useful to indicate whether at a given conjunction of a Star with the Moon, the positions are likely to produce an occultation in a given latitude, and thus to save considerable labour to the computer.

Thus, suppose from the times of conjunction in the month of April, at page 531, it were required to prepare a list of Occultations for Greenwich, whose latitude is $51^\circ\ 28'\ 39''$ N. On looking down the column of Limiting Parallels we reject at once the first seven stars, because the Limiting Parallels do not comprise the parallel of Greenwich. On April 12, we see that $\chi^1$ Orionis may be occulted to all the parallels of latitude between 78 N. and 13 N., which include that of Greenwich; this Star would therefore be fixed upon for calculation if no other considerations existed to cause its rejection. We observe, however, that the conjunction takes place at $0^h\ 16^m\ 42^s$, the intensity of sun-light would therefore prevent its being seen, and it would be rejected in consequence, as would also $\chi^5$ Orionis on the same day, the conjunction occurring at $4^h\ 47^m\ 37^s$. The next Limiting Parallels having Greenwich between them, are 90 N. and 21 N., opposite to $E^1$ Orionis. The time of conjunction in this instance, as regards sun-light, is favourable; if, therefore, on further inquiry, the [illegible] nd to be above the horizon of Greenwich, we should commence the calcu[illegible]

appear on reference to page 525, that an occultation of this star is visible at Greenwich. On October 3, VENUS may be occulted between the parallels of 72 N. and 25 N., but the phenomenon is invisible at Greenwich.

*Phenomena.* (Pages 539 to 550.)

Pages 539 to 545 contain all the particulars necessary for indicating the times, places, &c., on the Earth where the Eclipses of the Sun and Moon, and Transit of Mercury will be visible; also the Elements which have been used in the calculations.

On pages 546 to 550 are given the conjunctions in Right Ascension of the Planets with the Moon, with each other, and with certain Stars; also the times when the Planets are in those parts of their orbits most favourable for observation, with a view to the more accurate determination of their elements; and other notices, chiefly of use to the astronomer.

*Saturn's Ring.* (Page 551.)

On this page are given the quantities which enable us to determine the position of the Ring of Saturn, at intervals of 40 days throughout the year, and whether it be visible or not. The value of $p$ shows the position of the minor axis of the Ring with respect to a circle of declination, those of $a$ and $b$ the Ring's apparent magnitude, and a comparison of those of $l$ and $l'$ its visibility or otherwise. For the plane of the Ring to be *visible*, it is necessary that the Sun and the Earth should be elevated on the same side of it, which is the case during the whole of 1845. The circumstances which determine the *invisibility* of the Ring are, 1st, when its plane passes through the centre of the Sun, or $l' = 0$; 2nd, when it passes through the centre of the Earth, or $l = 0$, and at this time $b$ also $= 0$; 3rd, when the Sun and Earth are on different sides of the plane of the Ring, for the Earth in this case will have the unilluminated side of the Ring turned towards it.

*Phases.* (Page 552.)

This page contains two Tables, the first showing the *Mean Time of the greatest Libration of the Moon's Apparent Disc;* and the second, the *Illuminated portion of the Discs of Venus and Mars* at the middle of each month.

*Opposition of Mars.* (Pages 553 to 555.)

These pages contain an Ephemeris of Stars proper to be observed with Mars about the time of the opposition in 1845, with a view to the determination of the parallax of that planet from corresponding observations of the differences of declination between the planet and stars, made at places differing considerably in latitude, such as the Observatories in the Northern and Southern Hemispheres.

The stars are selected in such manner that there may be always sufficient intervals of time between their transits and those of the planet to enable the observer to read off the divisions of the circle, or micrometer; except in some cases, when two objects, not distant above five or six minutes in declination, will pass through the field, the telescope remaining fixed, and when their difference of declination may be obtained by means of a micrometer.

The apparent geocentric position of Mars at his transit at Greenwich will be found at pages 317 to 339.

It is recommended that when both limbs of Mars cannot be conveniently observed on the same day, the northern limb should be observed on the *odd* days, and the southern limb on the *even* days of the month.

Those astronomers who are possessed of good equatorial instruments may take repeated measures of the differences of declination between the selected stars and the planet on the same night, noting the times at which the observations are made.

53 Aquarii, being a double star, the southern, and following of the two, is the one to be observed. This is denoted by the small figure 2 being affixed to the number of the Star.

The mean places of the Stars have been taken from the following authorities:—

$\kappa$, $\delta$, and $\mu$ Capricorni, and $\iota$ and 35 Aquarii, from *Pond's Catalogue of* 1112 *Stars*.

29, 42, 45, and $53^2$ Aquarii, from the *Astronomical Society's Catalogue*.

The Stars marked (*a*) and (*b*) from the *Histoire Celeste Française*, pages 186 and 194.

The Star marked Piazzi XXI. 333, from his *Catalogue*, 2nd edition, published in 1814.

*Tides.* (Pages 556 to 559.)

The Mean Time of High Water at London Bridge is here given for every day of the year, on the assumption that the time of high water on full and change days, or the *Establishment of the Port*, is $2^h\ 7^m$. The first high tide which happens after Mean Noon of any day is inserted in the 1st column, and the second in the 2nd column. Where a line (—) is inserted, it indicates that there is only *one* high tide on that day. Thus on May 18 there is only one high tide: it occurs at $11^h\ 36^m$, but the succeeding high tide does not take place until $1^m$ after mean noon of May 19.

The times of high water at full and change of the Moon, as given at pages 558 and 559, are reckoned from *Apparent* Noon: They represent the *Establishments of the Ports*, that is, the *actual times* of High Water *when the Moon passes the meridian at the same time as the Sun;* or the *intervals* between the times of Transit of the Moon and the times of High Water *on full and change days.* They serve to determine the time of high water on any other day at those places in the usual manner. The time of high water, however, at any of the places contained in this table, may be deduced for every day from the time of high water at London Bridge, by taking the difference between the *establishment of the port* at each of these places, and the *establishment of the port* at London Bridge, viz., $2^h\ 7^m$, and considering this as a constant quantity, representing the difference of the tides between London Bridge and the place, to be *added* to, or *subtracted* from, London Bridge tides, according as the establishment of the port at the place is *later* or *earlier* than that at London Bridge. Thus the establishment of the port at Aberdeen Bar is $1^h\ 11^m$, and at London Bridge $2^h\ 7^m$; the difference is $0^h\ 56^m$, and the Aberdeen tide precedes that at London: therefore, by *subtracting* $0^h\ 56^m$ from the London Bridge tides, we obtain the Aberdeen tides in *mean* time. On February 24, 1845, the first high water at London Bridge occurs at $3^h\ 42^m$, which being diminished by $0^h\ 56^m$ gives $2^h\ 46^m$ for the corresponding tide at Aberdeen, and so for other places.

*Table showing the Correction required on account of Second Differences in finding the Greenwich Time corresponding to a reduced Lunar Distance.* (Page 560.)

The use of this Table has been sufficiently explained, by the Examples given at page 583.

*Tables for determining the Latitude by Observations of the Pole Star out of the Meridian.* (Pages 561 to 563.)

These Tables serve to determine the Latitude from an observation of the Altitude of the Pole Star out of the Meridian. The method of using them is as follows:

From the observed altitude, when corrected for the error of the instrument, refraction, and dip of the horizon, subtract $1'$.

Reduce the Mean Time of Observation at the place to the corresponding Sidereal Time, by the Table given at page 564. (See *Tables of Time Equivalents*, following this article.)

With the Sidereal Time found, take out the *first correction*, with its proper sign. If the sign be +, the correction must be *added* to the reduced altitude; but if it be —, it must be *subtracted*: in either case the result will give an Approximate Latitude.

With the Altitude and Sidereal Time of observation, take out the *second correction*, and with the day of the month and the same Sidereal time, take out the *third correction*. These two corrections *added* to the Approximate Latitude, will give the Latitude of the place.

*Example*: On March 6, 1845, in Longitude 37° W. at $7^h\ 43^m\ 35^s$ Mean Time, suppose the altitude of the Pole Star, when corrected for the error of the instrument, refraction, and dip of the horizon, to be 46° 17′ 28″: Required the latitude.

| | | |
|---|---|---|
| Mean Time - - - - - - - | $7^h\ 43^m\ 35^s$ | |
| Diff. Long. (37°) in time - - | 2 28 0 | |
| Greenwich Mean Time - - - | 10 11 35 | |
| Sidereal Time at Greenwich Mean Noon - | | $22^h\ 56^m\ 18^s$ |
| Mean Time at Place - - - - - - - - | | 7 43 35 |
| Acceleration (Tab. page 564) for $10^h\ 12^m$ | | 1 41 |
| Sidereal Time of Observation - - - - | | 6 41 34 |
| Corrected Altitude - - - - - - - - - - | | 46° 17′ 28″ |
| Subtract - - - - - - - - - - | | 1 0 |
| Reduced Altitude - - - - - - - - - - | | 46 16 28 |
| With *Argument* $6^h\ 41^m\ 34^s$, *First Correction* | | − 0 8 57 |
| Approximate Latitude - - - - - - - - - | | 46 7 31 |
| *Arguments*, 46° 17′, $6^h\ 42^m$ } *Second Correction* | | +1 14 |
| *Arguments*, March 6, 1845, $6^h\ 42^m$ } *Third Correction* | | +1 22 |
| Latitude of the place - - | | N. 46 10 7 |

which differs only 2″ from an actual trigonometrical computation.

The *Tables of Time Equivalents*, given at pages 564 to 567, are useful for converting Mean Time into Sidereal Time, and Sidereal into Mean Time, agreeably to the example annexed to each table. They will serve also for Tables of Acceleration and Retardation, by taking the difference between each argument and its equivalent. Thus, in the Table at pages 564 and 565, the *excess* of the sidereal time equivalents above the arguments of mean time show the *acceleration* of sidereal on mean solar intervals; and in the Table at pages 566 and 567, the *defect* of the mean time equivalents, as compared with the arguments of sidereal time, indicate the *retardation* of mean on sidereal intervals.

The concluding Table, at pages 568 to 572, contains the *Latitudes and Longitudes of the principal Observatories*. This Table has already been considerably improved, and will, it is hoped, be gradually perfected by communications from each astronomer, of the latest and most accurate determination of his geographical position.

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